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COAST GUARD'S VESSEL TRAFFIC SERVICES 2000

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Coast Guard's Vessel Traffic Service... *in the*

SUBCOMMITTEE ON
COAST GUARD AND NAVIGATION

OF THE

COMMITTEE ON
MERCHANT MARINE AND FISHERIES
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

ON

**EXAMINING THE STATUS AND FUTURE OF THE COAST
GUARD'S VESSEL TRAFFIC SERVICE PROGRAM AND
THE NEED FOR STATE-OF-THE-ART SYSTEMS**

JULY 29, 1993

Serial No. 103-52

Printed for the use of the Committee on Merchant Marine and Fisheries



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(III)

COAST GUARD'S VESSEL TRAFFIC SERVICE 2000

THURSDAY, JULY 29, 1993

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COAST GUARD AND NAVIGATION,
COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:30 a.m., in room 1334, Longworth House Office Building, Hon. W. J. (Billy) Tauzin (Chairman of the Subcommittee) presiding.

Present: Representatives Tauzin, Pickett, Hochbrueckner, Pal-lone, Lambert, Coble, and Bateman.

Staff Present: Subcommittee on Coast Guard and Navigation—Elizabeth Megginson, Staff Director; James L. Adams, Professional Staff; William Wright, Professional Staff; Rusty Savoie, Professional Staff; Catherine Tucker, Clerk; Committee on Merchant Marine and Fisheries—Ed Lee, Minority Professional Staff; Rebecca Dye, Minority Counsel; and Margherita Woods, Minority Staff Assistant.

STATEMENT OF HON. BILLY TAUZIN, A U.S. REPRESENTATIVE FROM LOUISIANA, AND CHAIRMAN, SUBCOMMITTEE ON COAST GUARD AND NAVIGATION

Mr. TAUZIN. The committee will please come to order. The purpose of this hearing today is to examine the status and the future of the Coast Guard Vessel Traffic Service Program. The need for state-of-the-art VTS systems became painfully obvious following the Exxon Valdez disaster. If our cleanup operations in Prince William Sound taught us anything, it is that when it comes to oil spills there is no substitute for prevention in the first place.

Unfortunately, we continue to race against time when it comes to building the VTS systems that are called for in the Oil Pollution Act of 1990. VTS systems have the promise of bringing order and management to our most dangerous ports. VTS systems will prevent accidents, save lives, facilitate commerce and protect the marine environment. Everyone supports the goals of VTS. But the Coast Guard's VTS 2000 Program remains underfunded and behind schedule. I would hate to think that it will take another major oil spill before we fully fund the administration's requests for VTS 2000.

I hope that this hearing will give this committee a better understanding of the Coast Guard's VTS 2000 Program. I want to welcome our witnesses today, and thank them for being here. To allow time for questions and discussion, I ask that each witness limit his testimony to five minutes.

Written testimony is already in Members's hands. I will ask you to summarize, talk to us about your testimony so we can get questions and answers as soon as possible.

I also want to take a moment of the committee's time and our guests' time today to wish a bon voyage to a good mariner. Mr. Rusty Savoie on our staff has just been accepted to Loyola Law School in New Orleans, like the country needs another lawyer. I guess since that tyrannosaurus ate one lawyer in the movie "Jurassic Park" we could use at least one more.

As he goes on to law school, I wanted to thank him in front of his friends and a loyal staff for the stewardship he has brought on behalf of the Merchant Marine Committee. Thanks for all the good work you have done for us. We hope to see you back once you have that big degree.

I understand Mr. Coble is on his way. Mr. Bateman, would you like to make an opening statement, sir?

Mr. BATEMAN. Mr. Chairman, I have none but would like to reserve the opportunity for Mr. Coble, any statement he may wish to make to have it included in the record.

Mr. TAUZIN. That will be done. Any written statements by Members will, by unanimous consent, be included in the record, as will the written statements of our witnesses.

Mr. BATEMAN. There is one from Mr. Fields. I want to make sure all the universe is aware that they have opening statements.

Mr. TAUZIN. It will be included.

[The statements mentioned follow:]

**STATEMENT OF HON. THOMAS J. MANTON, A U.S. REPRESENTATIVE FROM NEW YORK,
AND CHAIRMAN, COMMITTEE ON FISHERIES MANAGEMENT**

Chairman Tauzin, thank you for this opportunity to make a statement at your hearing. I am one of the lucky Members of this Committee—the Vessel Traffic System for my city is largely in place.

The good news is that besides being in place, the system is working as planned. However, it is still a rudimentary system. VTS 2000 looks to the future needs of our Nation. It takes technology and puts it to work preventing oil spills.

We all agree on the importance of preventing oil spills and vessel traffic systems are proven tools that avert spills. Unfortunately, like so many of our goals, preventing oil spills costs money. However, my conversations with maritime experts at the Port of New York/New Jersey convince me that to delay spending for VTS 2000 would be the height of foolishness.

I commend the Chairman for calling this hearing. I hope my colleagues will come to appreciate the importance of this program. The message that witnesses bring today is quite simple. If you want to maintain clean and safe harbors, free of spilled oil, support funding for VTS 2000.

**STATEMENT OF HON. JACK FIELDS, A U.S. REPRESENTATIVE FROM TEXAS, AND
RANKING MINORITY MEMBER, COMMITTEE ON MERCHANT MARINE AND FISHERIES**

Mr. Chairman, as a conference negotiator for the Oil Pollution Act of 1990, I supported strengthening our national navigation safety system to protect U.S. ports from environmental disasters. The Oil Pollution Act required the Coast Guard to study the national needs for Vessel Traffic Service (VTS) systems, and to report their findings and recommendations to Congress. The Coast Guard's Port Needs Study found a clear benefit for VTS systems in: New Orleans, Louisiana; Port Arthur, Texas; Houston/Galveston, Texas; Mobile, Alabama; Los Angeles/Long Beach, California; Corpus Christi, Texas; and Boston, Massachusetts.

The Coast Guard has requested over \$27 million for the next fiscal year to continue acquisition of VTS systems in the Ports of New Orleans, Los Angeles/Long Beach, and Port Arthur, and begin acquisition of VTS systems in the Ports of

Mobile and Corpus Christi. The Coast Guard estimates that the VTS 2000 program will cost about \$140 million over the next five years. We must ensure that these funds are spent wisely, and that all reasonable acquisition alternatives are considered.

I commend the Chairman of the Subcommittee on Coast Guard and Navigation for holding this hearing, and will be working with him to ensure that the VTS 2000 program receives adequate funding to proceed.

Thank you, Mr. Chairman.

STATEMENT OF HON. HOWARD COBLE, A U.S. REPRESENTATIVE FROM NORTH CAROLINA, AND RANKING MINORITY MEMBER, SUBCOMMITTEE ON COAST GUARD AND NAVIGATION

Mr Chairman, I appreciate your calling this hearing about the status and future of the Coast Guard's Vessel Traffic Service 2000 program. Like you, I believe that the VTS 2000 program will greatly enhance vessel safety and navigation while helping to further protect the environment.

Unfortunately, the House Appropriations Committee initially failed to provide any funding for this important new project. As you know, Mr. Chairman, I have been a strong supporter of your efforts to restore \$6.6 million for the VTS 2000 program to the fiscal year 1994 Department of Transportation Appropriations bill. I regret that the very tight Federal budget will not allow us to provide any additional funds at this time.

I look forward to hearing from the Coast Guard about the development of the VTS 2000 program. I will also be very interested to hear from the other witnesses about private efforts to create alternative vessel traffic systems. Thank you, Mr. Chairman.

Mr. TAUZIN. Let me welcome our only panel today. The panel will be led by Rear Admiral William Ecker, Chief of the Office of Navigation Safety and Waterway Services, U.S. Coast Guard. He will be joined by Captain Mark Delesdernier, President of the Crescent River Port Pilots Association; Captain Jerry A. Aspland, President, ARCO Marine, Inc., and Captain Timmel, President, Tampa Bay Vessel Information and Positioning System, Inc.

Gentlemen, welcome. Admiral, we particularly are anxious to hear your update for us on what VTS 2,000 is and what we might do to expedite it.

STATEMENT OF REAR ADMIRAL WILLIAM J. ECKER, CHIEF, OFFICE OF NAVIGATION SAFETY AND WATERWAY SERVICES, UNITED STATES COAST GUARD

Admiral ECKER. Good morning, Mr. Chairman. I also wish Rusty good luck in law school. It is my pleasure to appear before this distinguished subcommittee to discuss the Coast Guard Vessel Traffic Service 2000 or VTS 2000 and the upgrading of existing VTS systems in U.S. ports. The Coast Guard is committed to a national system for enhancing the safety and economic viability of our ports and waterways by employing preventive and protective measures that will contribute to a vital, efficient, safe and secure transportation infrastructure.

VTS 2000 is a major acquisition project that will implement the results of our 1991 port needs study by establishing a national Vessel Traffic Service system. The port needs study, required by OPA 90 and prepared by the Volpe National Transportation Systems Center, objectively evaluated the safety enhancements and economic benefits that could be gained by having a VTS in 23 major ports and waterways. The study findings group the 23 areas into three categories according to whether the cost benefit analysis

of the study resulted in a positive, a sensitive, or a negative net benefit.

The VTS 2000 project focuses on the 15 ports that fall into the positive and sensitive categories and two existing ports where there is an existing Coast Guard VTS that will eventually require retrofit with the VTS 2000 system. The VTS 2000 system will use state-of-the-market components and employ an open architecture, open design system. This approach readily permits the insertion of new technology and accommodates planned future improvements as requirements mature and technology evolves.

We intend to design a living system which will permit planned upgrades over the life of the system. To assist in VTS 2000 requirements analysis and development of an initial VTS operational concept, the Coast Guard formed a concepts and requirements team, CART, in February of 1993. The CART consists of 18 representatives from the maritime industry, the Coast Guard and other government agencies with a vested interest in the success of VTS 2000.

The operational concept developed by the CART provides a VTS 2000 vision as it will exist when fully implemented. It recognizes that the most effective way to reduce the risk of vessel accidents is to provide vessel masters with relevant, accurate and timely information to help them make correct navigational decisions. This operational concept is the cornerstone upon which the Coast Guard will develop the operational requirements that are needed to progress successfully through the acquisition phase of the VTS 2000 project.

The project has five acquisition strategy objectives: First, to establish new VTS systems using the port needs study as the basis for investment decisions; second, to ensure cross-functionality with other information systems to enable VTS 2000 to exchange data with Coast Guard systems such as AMVER and the Marine Safety Network, as well as other government and commercial information systems that could offer synergy to the VTS mission; third, to develop a nonproprietary open architecture system using defined interface standards that will provide flexibility for future changes; fourth, to retrofit existing vessel traffic systems, thus creating a national VTS system with all ports having the same technological capability; and, fifth, to enhance logistics service through commonality of software, hardware and equipment.

The planned capability includes decision support systems that far exceed the capabilities of our existing VTSs and match the capability of any in the world. All functions will be integrated to allow for as much automation as possible. Our intent is to reduce the watchstander workload and allow the system to perform as much as possible automatically. This will free the watchstanders from many manual tasks, allowing them to focus more on monitoring traffic and managing the waterway.

VTS 2000 will be a national VTS system, thereby allowing for standardization and a reduction in life cycle costs. The system will have the same look and feel whether you are sitting at a console in New Orleans, or Los Angeles-Long Beach. However, we recognize that different ports have different requirements that will not be completely met by a national system. Therefore the system will have the flexibility to accommodate unique port requirements.

The VTS 2000 plan is proceeding well. The system engineer, Mitre Corporation, is working with the CART to describe our requirements in sufficient detail so that we obtain the VTS system that best serves the customer's needs. Site identification is underway in New Orleans and Los Angeles-Long Beach. Initial geographical assessments have been completed in Mobile, Alabama, and Corpus Christi, Texas. Similar assessments are commencing in Boston, Massachusetts, and Tampa, Florida.

We ask for the committee's continued support so that we do not lose the considerable momentum we now have. People are in place, preliminary studies and evaluations are showing results, contracts are awarded or nearly complete and real property is being sought. Financial stability is all that the project lacks. The President's fiscal year 1994 budget request for VTS 2000 is \$27.6 million. We have completed a sensitivity analysis to determine the impact various levels of funding reductions would have on the project.

The published VTS 2000 schedule is adversely impacted if project funding is reduced. The acquisition strategy and the budget need to remain synchronous. Reduction of the budget request impacts the acquisition plan which impacts the completion schedule, and funding reductions will result in undercapitalization of the project. This project is a top Coast Guard priority. It is in line with the intent and the requirements of OPA 90. It is also a Coast Guard project that was highlighted in President Clinton's "Vision of Change for America."

I appreciate very much the support the subcommittee has given the Coast Guard in the past on VTS and I ask your continued support for this very worthwhile project. Thank you, Mr. Chairman.

[The statement of Admiral Ecker may be found at end of hearing.]

Mr. TAUZIN. Thank you. Captain Mark Delesdernier, President of the Crescent River Pilots Association.

STATEMENT OF CAPTAIN MARK DELESDERNIER, PRESIDENT, CRESCENT RIVER PORT PILOTS ASSOCIATION

Captain DELESDERNIER. Thank you, Mr. Chairman and members of the committee. I will dispense from going through the report word for word. However, I would like to say that I began my marine career on the Mississippi River in 1949 and since then I served 12 years heading up the Pilot Board of Commissioners, which trains pilots working with the Corps and the Coast Guard on many projects and I have been president and CEO of the Pilots Association for 11 years.

I would like to start by addressing what were the causes of the failure of the first VTS system in New Orleans. One, the VTS system was voluntary. Consequently, all of the users did not participate in the system. Secondly, the VTS was technically flawed because it could not provide accurate real time information to the mariner. Thirdly, the VTS was implemented without the cooperation of the user groups and industry representatives, resulting in the poor use and acceptance; and, fourth, the VTS was managed by inexperienced Coast Guard personnel who were unable to adequately advise and inform the users.

I would then like to skip over and talk about a future VTS system. I would like to make the point that I am not here to discredit any other port or waterway that may have different ideas about what their needs are or what type of equipment should be used, but for the purpose of trying to get a layman's language delivered to this committee, I will talk specifically about the Mississippi River.

In the future VTS system, the system must be port specific, but designated to work in a particular waterway system and be focused on the user. Second, the system must enhance communication between the mariner and the Vessel Traffic Center without being obtrusive. Third, the system must be totally integrated and have equipment with the technical ability to ensure accuracy and reliability of the information disseminated to the mariner. Fourth, The system must be managed by professional mariners who have local knowledge of the waterway and are capable of communicating with the mariners, and the system must be advisory and allow the mariner to exercise independent decisionmaking.

Now, for the benefit of the committee, I would like to get a little bit into why the Mississippi River is different. You have been seeing on television one of the reasons why it is different. You never know what it is going to do. I would like to start by saying that the Mississippi River is draining 40 percent of the continental United States so you have an idea of the volume of water, which is flowing at millions of cubic feet a second. The area which we are piloting on is 250 miles from the seaport of Baton Rouge and the round trip is 500 miles, where we are serving five ports. We have docks on both sides of the river. The average ship making a round trip to Baton Rouge from sea will have 50 hours of navigation steaming time, meaning that that vessel is exposed to the perils of the river for a very long time.

The three State pilot associations on the Mississippi River are performing 50,000 pilot movements a year, and of that 94 percent is foreign-flagged vessels. One of the problems there is that a lot is to be desired with the crews that we are now finding on these vessels from Third World countries, particularly with the standards and training of watch keeping, and there mainly is a language problem. The Mississippi River complex exports more tonnage in cargo than the largest port in the world, Rotterdam. The passing situations on the Mississippi are comparable to nothing else in this country.

The other waterways that are considered narrow channels you have the right-hand rule where you hold to the right. The Mississippi River is different. We have to run a point and bend system where the upbound traffic comes up under the point and the downbound vessel in the bend, giving the ship with the poorest steerage the greatest turning radius so it can maneuver these bends. The Mississippi River has many blind turns that are in excess of 90 degrees meaning you cannot see around them. This is where VTS plays an important part.

It varies in depth from sand bars to 230 feet. The currents in the river go up to 8 knots. Imagine a ship going down river 8 knots over the bottom with absolutely no steerage because it is only traveling with the flow of the current. If you put minimum maneuver-

ing speed of 8 more knots onto that you are now making 16, which is over 18 statute miles a hour and you are barely steering so it is not uncommon for these vessels to approach 23 or 24 miles an hour.

The tonnages of these vessels range from a hundred dead weight tons to 250,000 dead weight tons and you can imagine this ship coming southbound that has a controlled stop distance of 8 miles. Now, what happened under the old system on many occasions is that the VTS watch keeper would develop a problem and call to the ship and tell the pilot stop that ship. You cannot stop that ship. It doesn't matter whether the captain or the port can stop the ship or not, the ship can't stop. You have to appraise the situation and sometimes have to call others in the vicinity and ask what the actual situation is to decide what your next maneuver is going to be. If the guy says a tow boat is broken down and blocking the river, you take your chance getting by.

If he tells you the river is on fire from bank to bank you will beach the ship. That is the only way you are going to stop it. So you have to make that decision. Up to a hundred days a year on the Mississippi we have fog. From September to December our fog is caused by warm water and cold air and from January to May it is caused from cold water and warm air, the reverse. At that time we have tremendous problems with rain. We have from 60 to 85 inches of rain a year. If a radar is not 10 KW or stronger you have white outs in rain. You are totally blind. Therefore we are now recommending that these vessels have 25 KW radars to handle the torrential rain situation. This will be a problem with the river boat gaming and we are trying to help them to spec their navigational equipment so they can compete with the line tows.

Another unique situation that you find on the Mississippi River, and I can best tell you by example, about four years ago a Russian grain ship, 110,000 tons, grounded in the vicinity of Powertown because the channel had changed in 24 hours and we do get hydrographic surveys from the Corps every 24 hours. This ship went aground and 27 days later it was freed from the ground with 67,000 horsepower from tug boats, 1.6 miles from the grounding, original location. You say how did that happen? Literally the mud lump moved with the ship. The ship was side ways in the river.

On a lee side of the ship the sand settles, when the ship went a ground she was drawing 45 feet. Seventy-two hours later on the lee side of the ship it was 19 feet. The water cuts away under the ship from the current side and as the water washes away and the ship is pushed by this tremendous pressure of a thousand-foot ship side ways in a 7-knot current and she eventually stops and builds a new sand bar.

Another problem that we have is that 25 anchorages that we have to weave through which sometimes we have up to 200 ships.

Before going to a conclusion of my report, I would like to say this, that immediately some of the things that are needed to make the river safer is that we need a better or different communication, VHF communication system because we are overcrowded. We are probably the busiest VTS area in the country and therefore we are either going to have to zone the VHF radio system where we don't have overlapping, that we are pounded with and unable to make

passing signals known and also we recommend that license standards be raised so that we have better qualified people that we have to work with on the Mississippi River.

Another suggestion to the committee is that the Coast Guard needs to more strictly enforce its inspections on foreign-flagged vessels that are visiting our ports that are appearing to be more and more substandard and are creating a real problem.

In closing, Mr. Chairman, I would like to say that the new system, the system must be informational. Care should be taken that the VTS does not encroach upon the master's responsibility of the safe navigation of the vessel or disturb the traditional relationship between the master and the pilots. No VTS is better than a VTS which is technically flawed and burdensome to the user. Hopefully we can learn from our past and create a system which is both economically feasible and which will protect our citizens and environment from catastrophes such as the Exxon Valdez. Thank you.

[The statement of Captain Delesdernier may be found at end of hearing.]

Mr. TAUZIN. I couldn't help during your testimony seeing visions of 8 miles of skid marks on the river there.

Captain Jerry Aspland, President of ARCO Marine.

STATEMENT OF CAPTAIN JERRY A. ASPLAND, PRESIDENT, ARCO MARINE, INC.

Captain ASPLAND. It is a pleasure to be here and be before the subcommittee again. I would like to make a few points and then we can get to questions and answers. As most of you know, I have spent my whole career in the maritime industry. Before I go on, these are the remarks of ARCO Marine and myself. They do not represent any remarks to the industry, because we may differ at times.

Vessel traffic systems have the potential to reduce risk of casualty more than any other mechanical means but it is my belief that human behavior, decisionmaking is the number one issue for casualty prevention. Since we refuse to deal with that issue, I think that the next most important thing to deal with is VTS. Why? Because all vessels must participate. VTSs provide information that otherwise wouldn't be available, and I happen to believe that it is cost-effective.

I also believe that all vessel traffic systems must be mandatory. That means that all vessels must participate and their space management governed by the system. This does not mean that the system should give rudder orders. It does not mean that the system should take away from the responsibility of the master. I do believe, though, that it will in fact affect some of the traditional beliefs of pilot-master relationships, which I believe have to be re-examined.

I also don't believe that hardware should be the number one issue. The top priority must be the interface of the bridge team and VTS personnel. If it is not, then all the hardware in the world is going to cause a worse problem than trying to get people to work together. VTS is not a proprietary tool and some people try to

make it that. It is not a proprietary tool of the pilot, the port authority, the ship master or the U.S. Coast Guard. It must be utilized for all stakeholders to take a look at how we best navigate and space manage vessels.

I would like to get back to the most difficult issue, funding. Every time we start to do something funding becomes an issue. We can do all the committee work. We can have all the reports, et cetera, but when it gets down to the dollar, we seem to fail. I do not support the idea that funding is the issue that stops all VTSs. In fact, it is a very poor excuse. But I think we need to put on our creative hats and think about different ways to fund VTSs and for that fact, other types of maritime issues. What is wrong with thinking about a national VTS trust or a shared costing such as Federal Government capital, user fee operating expenses?

VTS does not have to be federally-controlled. It can be private. It can be run by a local government. But if it is not federally-controlled, there are three considerations that must be given: One, granting some form of VTS immunity; two, development of standards for installation and operation of VTS systems, and, three, the ability to develop rules and regulations at the local level to support locally operated systems.

I believe also very strongly that every VTS system must have a locally recognized advisory group. Without it, they cannot be effective in the local area. The local area advisory groups in fact can play a key role in bringing together the trust between the people and the operation.

The foregoing comments complete my comments in a general sense about VTS. However, I would be remiss in not bringing up Los Angeles-Long Beach and we are very excited and proud of what is going on there. Between the Marine Exchange, the Coast Guard, the shipping industry and the State of California, we are about to launch a VTS system in the port. The State of California is going to loan us a million dollars. We have to pay it back, unfortunately, but they will loan us a million dollars to get started.

The Coast Guard personnel will be on-site. We will fund it through a user fee. We have a group of committees that have looked over the whole situation. The system will operate outside of what we call the breakwater. Inside we will continue with our present system. The site has been selected and we expect to be in operation by January 1st. The user fee on an average basis that we will charge will be somewhere in the neighborhood of \$250 per trip. This will support a budget of just over a million dollars.

We are very, very pleased and I am very happy to say for once a bunch of us got together and decided to do something about it.

I would also like to make it very clear, being an old tanker operator, and tankers seem to get blamed for everything these days, but that goes with the territory. What caused this to come together had nothing to do with tankers. One day we all observed a container ship almost going through the middle of a passenger ship, and that was the accident or the near miss that caused this to happen, and that is the issue. It is not tankers, it is not passengers, it is not container ships. We need better space management. We need better ideas how to prevent casualty casualties. Thank you.

[The statement of Captain Aspland may be found at end of hearing.]

Mr. TAUZIN. I assume when you say you are an old tanker operator that you operated old tankers?

Captain ASPLAND. No, I am from the days of wooden ships and iron men.

Mr. TAUZIN. We will now hear from Mr. John Timmel, President of the Tampa Bay Vessel Information and Positioning System, VIPS.

STATEMENT OF JOHN C. TIMMEL, PRESIDENT, TAMPA BAY VESSEL INFORMATION AND POSITIONING SYSTEM (VIPS), INC.

Mr. TIMMEL. Good morning Mr. Chairman and distinguished members of the subcommittee. I thank you for the opportunity to be here this morning. I am Captain John Timmel, a harbor pilot concerned with guiding ships safely in and out of Tampa Bay. I also serve as President of Tampa Bay VIPS, a nonprofit corporation established to promote a new technology that we call a vessel information and positioning system. This system is desperately needed to make sure that vessels transit Tampa Bay safely especially when adverse weather conditions increase the risk of hazards.

VIPS allows us to determine our position and assists us in staying within the harbor channels much like a seeing eye dog guiding a ship through otherwise blind navigational situations. Our interest in VIPS began two-and-a-half years ago when Mobil Oil hosted a forum for Tampa Bay's maritime community to examine the merits of a vessel positioning system for our ports. As a result of this forum the greater Tampa Bay Marine Advisory Council established a task force to evaluate this technology. The first determination we made is that there is a compelling need for this type of system.

Tampa Bay is an extremely sensitive and fragile ecosystem. We are one of the newest members of the National Estuary Program. It is also a complex port with nearly 80 miles of narrow convoluted channels with strong currents. It becomes even more complex when we lose visual and radar cues in one of Tampa Bay's notorious thunderstorms. We have the dubious honor of being known as the thunderstorm capital of the world. Let me assure you that when you are navigating a deep-loaded vessel and are caught in blinding rain with 50 knot winds, need for a VIPS becomes unquestionable.

As stated earlier by another witness, in intense rain situations, a situation which we have often on Tampa Bay, the radar on board vessels white out so at the same time you are unable to see out of the window of the wheel house you are also unable to see with the on-board radar. It was this type of scenario that resulted in the tragic Sunshine Skyway Bridge accident in 1980 that left 35 people dead. Though no system can guarantee that accidents will not occur, had this system existed in 1980 that accident most likely would have been averted.

Secondly, we determined a need for a hybrid system that tracks all vessels, those that are participating in the VIPS as well as

those that are not. This concept is currently being implemented by the U.S. Coast Guard in Prince William Sound. What excites me most about VIPS and its main advantage over some of the conventional systems is this lightweight carry-on pilot unit. This piece of equipment will allow mariners on board the vessel to see what is seen in a traditional VTS-type system. It will give us an electronic chart display with our vessel's position to DGPS accuracy as well as the position of other vessels that are participating in the system to the same degree of accuracy and the radar positions of those vessels that do not have this type of system on board.

It will also allow us to receive weather radar information and other transmissions from the control center that give us pertinent navigational data. No matter how good pilots are, we still have to make numerous subjective judgments. This is a tool that will help us make those judgments better. Another benefit is that it eliminates the need for a shore-based operator. Instead, it provides voiceless information in a simple visual form to the ones who need it, those actually involved in navigation of the vessel. Simply put, a picture is worth a thousand words. Additionally, this approach will allow individual ports to determine the type of equipment needed on board vessels navigating within their waters. It will provide noncompliant vessels with the ability to become compliant the moment a pilot steps aboard that vessel with a carry-on unit.

Thirdly, our system costs less than one-fourth of the one proposed in the port needs study. This is an example of private enterprise at its best. Thus far costs have been borne by individuals with no profit motive and by forward-thinking corporations like Mobil who see the value of prevention over that of response. Over the next decade the international marine industry will spend from 20 to \$30 billion on vessel safety measures including double hulls and response preparedness. Though I believe in being prepared, I think the focus on response has been excessive. We need to shift our focus from reacting to accidents to preventing accidents. It makes more sense to spend a million dollars on prevention now than billions of dollars on response and cleanup later.

Mr. Chairman, what we are proposing is a prevention-based approach, let's build in safety and prevent accidents. The technology is here to enable us to move into the 21st Century today at a modest and affordable cost. This cost is a small price to pay to prevent marine disasters and to safeguard our environment.

Mr. Chairman, there is a place for this type of user-driven system in many ports throughout the Nation. I am not here to suggest that we can or should replace the Coast Guard, but rather that we have and will continue to work with them. We feel that the Tampa Bay VIPS project can serve as a model demonstrating the value and cost-effectiveness of this privatized approach. I ask you to consider allocating a small portion, a mere 1/100 of the proposed VTS 2000 budget being discussed here today to implement this technology without further delay.

I would also like to bring your attention to an op-ed that appeared in today's New York Times about our system. It explains the system in a thumbnail sketch very well. It will also appear in next week's Roll Call for those who are interested. Thank you very much, Mr. Chairman, and members of this distinguished subcom-

mittee. I would be happy to answer any questions that any of you may have.

[The statement of Mr. Timmel may be found at end of hearing.]

Mr. TAUZIN. Thank you. The most important question is will Testaverdi and the Tampa Bay Buccaneers have the advantage of that equipment on the field? We have a young fellow from Nichols State in my district, Mark Carrier, playing for Tampa and I am sure as a wide receiver he could use the help.

Let me ask a pretty basic question here. The port needs study obviously was a terribly important document because it identified the incredible needs of ports across this country for better vessel traffic management systems. There are good options on the table. But wasn't this study done before the great rush to gambling boats, casino style gambling ships and boats on the rivers and in the harbors of the nation? Admiral?

Admiral ECKER. The port needs study came out of OPA 90 and as far as timing, it is probably a correct assumption that the study was performed prior to the genesis or the proliferation of gambling boats that we see today.

Mr. TAUZIN. The next question is would the factoring in of this enormous explosion of gambling boat operation in any way affect the port needs study recommendations?

Admiral ECKER. That is hard to say. The gambling vessels are primarily concentrated more on the river systems, other than New Orleans and Biloxi and a few of those ports. It is not as defined, if you will, in other ports around the country. The port needs study is an overarching view of all of our ports as opposed to those strictly concentrated in the gambling area.

Mr. TAUZIN. An awful image comes to mind of the potential of a ship carrying a huge cargo of oil or other chemicals colliding with a passenger vessel now carrying 1,500 to 2,000 gamblers and having not only oil in the water but a lot of people who might not be in good shape to survive in an 8-knot river current. Obviously, the proliferation of river boat gambling has, if nothing else, amplified the need for better systems of spacing and vessel traffic management. Captain?

Captain ASPLAND. I extend that a bit and say that there are certain ports that have a tremendous amount of passenger ship activity. While they were in operation at times of port needs, I believe the port needs study is accurate.

Mr. TAUZIN. Los Angeles is one of those?

Captain ASPLAND. Right. I believe it might be too oriented toward oil and not toward the whole system and maybe that would change the way that is put together.

Mr. TAUZIN. John, you talked about a system that does identify all vessels, not just those that are carrying cargo and participating in a VTS system. I assume the technology you have there would also be applicable to use in gambling boats and other passenger-type vessels traversing the rivers or entering the harbors of America?

Mr. TIMMEL. We see two applications. The most widespread use of this equipment would be through the carry-on unit which the pilot would carry on board with them. Vessels that are regular callers, tugs and barges or gambling vessels within a particular

port would be able to have permanent installations but the same technology.

Mr. TAUZIN. Mark, you gave us a horrific picture of the treacherous conditions on the Mississippi River even without flood stage, vessels that take 8 miles to stop, that have to travel 23 miles an hour in an 8-mile-an-hour downstream current just to be able to maintain a modicum of steering capacity, of fog and rain conditions, of blind turns.

Mr. Bateman whispered to me when you were describing it maybe we ought to shut the river down. We can't shut it down, but we ought to make it safer. You have heard suggestions about use of fee systems to speed up VTS, new technologies such as in Tampa Bay. Would those concepts make sense in the great Mississippi River system?

Captain DELESDERNIER. I think before looking at the higher technology that is available today that we have to reevaluate the system in the Mississippi River, particularly in the harbor of New Orleans more so than the rest of the river, because of the 15 licensed gaming boats none of those licensed will be competing with seagoing vessels from Baton Rouge to New Orleans. In the port of New Orleans we are looking at five, and these vessels are capable of carrying 3,000 passengers.

Mr. TAUZIN. Including the Governor.

Mr. BATEMAN. Is that especially the Governor?

Captain DELESDERNIER. The schedules that I am seeing in their proposals are showing that these gaming vessels will be running five three-hour trips a day, so they are going to be steaming 15 hours a day. One of the problems you have in the New Orleans area for this type of vessel is for every foot she goes forward she sets sideways a half a foot; so it is very difficult to track because you are setting with the current in the bends, particularly with slow moving vessels like these. They need a very, very accurate system to keep themselves on track along with dealing with 40 seagoing vessels a day coming through that area and probably five or six line tows which have anywhere from 20 to 40 barges.

Mr. TAUZIN. Admiral, would you comment on the technology described in the Tampa Bay system? Is it something the Coast Guard is looking at potentially integrating?

Admiral ECKER. We have not looked at that from the standpoint of integration. It is a very specific system. We discussed and became aware of their system some time ago, but that particular technology at this point in time is not part of the mix that we are developing into VTS 2000. The capabilities, the use of electronic charts, the taking advantage of newly developed technology certainly is part of the VTS 2000 project, but not particularly this technology.

Mr. TAUZIN. I would urge you to give it a look. If he is installing a safe system and at one-quarter of the cost, and funding is a problem for us, perhaps those kinds of innovations need to be examined.

Admiral ECKER. We look at that system and the way that it will be implemented as having some drawbacks in terms of what we envision and what is accepted in terms of a vessel traffic system. They have called it a vessel information and positioning system as

opposed to a VTS. That is important because you don't have surveillance ashore, you don't have an opportunity for people on shore to communicate with a ship when they are in danger or when things need to be clarified. We are not talking about a system that is going to be available to all users. It is a rather select group of users so there are serious, shall we say, deficiencies that we would look to as being necessary in a VTS, but that is not to denigrate the use in Tampa Bay.

Mr. TAUZIN. Captain Aspland, you said it was really personal human behavior that was the biggest problem, but since we refuse to deal with the subject—what do you mean by that?

Captain ASPLAND. I don't happen to believe that the maritime communities, the regulatory community nor the congressional community wants to stop and take formidable actions as to how we select, train and develop people in the industry. Until we decide that we are going to do that, not much is going to change. There are enough statistics around that say that eighty percent of all marine casualties are caused by human factors. I happen to believe that, and people don't like to step up to issues that have to do with people.

Mr. TAUZIN. Isn't that fairly complicated, when as Captain Delesdernier points out 94 percent of the ships entering his port are foreign-flagged and in many cases coming from Third World countries, language barriers and unsufficient training—how do we deal with that, Admiral?

Admiral ECKER. There is no question that language difficulties have played a part in previous casualties. We have pilot requirements for vessels flying foreign flags. They are required to have the expertise of a pilot on board during transits in U.S. waters. We have changed some of the regulations in terms of licensed people on the bridge during more treacherous passages. But yes, no question communication always is a difficult problem, particularly in U.S. waters.

Mr. TAUZIN. We may want to have a separate hearing on that very issue as opposed to the technologies and advances in VTS on those sensitive issues that deal with the people involved and particularly with the advent, as Captain Delesdernier pointed out, vessels coming in from different parts of the world than we have seen before with different language problems.

Captain ASPLAND. We would like to try and solve the issue with technology here. Every day someone comes through the office with a new scheme to solve it and there are excellent ways to do it. However, if you don't put the man in the middle of this technology and make them understand, then it won't work. For example, we have our masters, we worked this out with Valdez VTS that there was too much talk going back and forth and there was not time for people to decide what they want to do.

I had someone come in talking about having a forward-looking sonar. It flashed through my mind who is going to be able to interpret this and what will they do with it when they get it. Another issue is electronic charts. Electronic charts are the basis for most of this. There are no standards for electronic charts today. It is going to be a terrible issue when we make mistakes because of the way

electronics charts are laid out and there has been very little thought given to the human side of that.

Mr. TAUZIN. Captain?

Captain DELESDERNIER. I would like to make a statement, Mr. Chairman. Not long ago we had a parcel tanker in the northbound Mississippi River capable of carrying 78 different chemicals which had refrigeration and stainless steel tanks, approaching the ferry landing and the main power plant failed. The ship had a lookout on the bow and an anchor watch on the bow. The pilot instructed the mate what to do in that if the ship took a shear to port he was going to drop the starboard anchor to try to keep from hitting the ferry. If it went the other way he would drop the other anchor. But literally he was going to steer the ship with the anchor until he could control it. Neither man on the fo'c'sle could understand the mate. The captain rushed up to the bridge because there was a problem and told the mate you watch the bridge, I am running on the fo'c'sle and will drop the anchor. The mate afterward informed me of the 35 crew members, they spoke 19 languages on board the vessel and this is not uncommon today.

Mr. TAUZIN. The Tower of Babel.

Admiral ECKER. I have a good example that came from the reports we received from Vessel Traffic Service Centers. This comes from Puget Sound and addresses the issue of the language problem. It shows how the communication aspects of VTS can intercede to avoid casualties. I will read it. A sector operator overheard and corrected confused passing arrangements which were made in the vicinity of the precautionary area in North Port Angeles between three freighters. None of the freighter masters spoke reasonable English and were all of different nationalities. After corroborating the situation with radar information, the watch stander interceded and relayed the correct intentions of all concerned, thereby avoiding a potential major collision. This is a good example of the communication side of VTS and having that watch stander there.

Mr. TIMMEL. The Admiral said that the VIPS is not a VTS. That is correct. In this country, generally, VTS has had an authority that has interjectory power to step in if they feel there is a need to do so. We are not proposing that. We are trying to provide the navigation technology that will allow us to stay out of trouble.

Costs, I mentioned that our proposed system will go in for a quarter of the cost of the one that was recommended in the port needs study. Our cost is \$1.4 million for all start-up and installation costs, versus the \$4.7 million in the port needs study. The system that we have includes GPS and carry-on functions that the port needs study did not include. Likewise for operation costs our annual expenses, all inclusive, are \$448,000 versus the estimate made in the port needs study of \$489,000 for manning costs alone.

It is true that when you have watch standers that you have a need for many more people. What we are trying to do is create a system that has the same radar distribution as that proposed in the study and we are seeking to meet all existing standards. Now, as will be pointed out, there are a lot of places where standards don't exist. We think that perhaps we might play a role in establishing some of those standards.

One of our design specifics to the vendor is that this system be open architecture, have an open architecture type design so that as standards are set, our system can meet it. We feel that when the Coast Guard comes to put in a VTS in Tampa, hopefully, all they will have to do is put in watch standers. If the Coast Guard feels there is a need, that it may be appropriate for an interjectory authority, that opportunity is still there.

Mr. TAUZIN. I thank my colleagues for being so kind as to allow me to go over my time. We have not discussed the issue of user fees and how they may affect competition between ports. I want to recognize Mr. Bateman for questions.

Mr. BATEMAN. Thank you, Mr. Chairman. I appreciate the witnesses being with us today. We are dealing in an area which I have little or no background in, but there leaps out at me the necessity to ask a question about the port needs study which I have been able to examine superficially, but that superficial examination would seem to indicate that what we are doing in terms of installing the VTS systems in three ports is contradicted by the port needs study, and to the extent that I have just made a correct statement, I am interested in knowing who made the decision as to which ports would be first getting the VTS, and what was the rationale of choosing these three when they are not those identified as being those most in need.

Admiral ECKER. Before answering that question I would ask Mike to put up a chart. We brought a chart with us that I think gives a very good overview of the VTS 2000 ports, as well as those ports where we have existing VTSs. The choice of which ports to address first; we have initially gone in with those ports that show a positive net benefit in the port needs study. We have said from the very outset that the port needs study listing in the positive benefit category is not a listing of priorities that we would use to establish VTSs. It was an economic framework on choosing those ports.

We will, in the course of developing the initial VTS system, use two of those ports on the positive net benefit side, New Orleans and Los Angeles-Long Beach, as the candidate ports for which we will ask the system architect to design and develop the VTS. That is how those two were chosen as the initial two ports. They present contrasts in terms of the opposite end of the spectrum, one being a riverine port and the other a basic open port.

As we complete the design for those two ports, we feel we will have captured the spectrum of the kind of technology and approach needed in pretty much all the candidate ports that come later, which will be a derivative of the first two designs. At Port Arthur, we are doing survey work for the small segment of the VTS that will go there. We have done initial survey work in Mobile, Alabama, and Corpus Christi, Texas, so in our preliminary efforts we have addressed the greater numbers of those ports where they had a positive net benefit.

The system and architecture and design we will create for VTS 2000, once we get the first two ports underway, the rest will be a derivative of that technology or that architecture.

Mr. BATEMAN. What are the first two ports?

Admiral ECKER. New Orleans, which was number one on the list by a great margin and Los Angeles-Long Beach. To some degree,

Long Beach is a reflection of what they are doing with existing infrastructure. Long Beach VTS is very executable in our point of view. It would be easy to build on what is there now. A number of the radar sites we intend to use are on government property, so acquisition of those and do-ability of the project is very attractive from that point of view.

Mr. BATEMAN. From what I thought I was hearing and what I thought I was looking at in the various charts of the port needs study, it seemed that somebody had selected three ports which were not by any of the charts indicated as where the higher level of need and cost benefit was.

Admiral ECKER. Could you share with me which three ports—

Mr. BATEMAN. The three that I understood you were going to go forward with would be New York, Puget Sound and San Francisco.

Admiral ECKER. Those are ports where we have currently operating VTSs. Our VTS approach is two-pronged. We are taking the ports where we currently have VTSs and upgrading their capability and expanding the location of the coverage for a number of reasons. The VTS 2000 project is addressing those ports currently without VTSs. It is two separate approaches to the subject.

Mr. BATEMAN. So New York, Puget Sound, and San Francisco come up lower in this needs study because they already have a system?

Admiral ECKER. That was taken into account in the dollar computations and putting together the port needs study.

Mr. BATEMAN. I am not sure that it wouldn't go over my head, but I guess the bottom line that I would like to ask about is were the ports to get the upgraded systems selected on their merits pursuant to analysis made by the Coast Guard or were there any intervening factors?

Admiral ECKER. The upgrades and the expansions in New York, San Francisco and Puget Sound were projects that were started quite a bit of time before the port needs study and the VTS 2000 project. They have a funding stream and authorization and justification that are apart from the VTS 2000 ports.

Mr. BATEMAN. Taking that as a given, thereafter, the determination as to which ports to pursue within limited financial resources has been the product of objective analysis?

Admiral ECKER. Yes, sir.

Mr. BATEMAN. Again, dealing with a very deficient technological base and intrigued with the VIPS system utilized in Tampa Bay and what seemed to be from Captain Timmel's presentation some superior merit as to whether or not it doesn't offer us an alternative that may be superior—Admiral, are we sure that we are not spending a lot of time and resources behind the curve in the public sector to things that the private sector is in fact doing?

Admiral ECKER. No. I see what we are doing as being much broader with a broader application. We are talking about a national system that will be capable of providing for the needs of individual ports. We are talking about employing state-of-the-art technology in a system that we will be able to easily upgrade as technological developments come down the road. I see this as being very different.

Having said that, let me say we are looking very closely at what Tampa is doing and we are going to look at the costs and benefits that they might realize in terms of when the system is implemented. We will look at all technology just as we always have.

Mr. BATEMAN. If the Tampa system is very capable and significantly less costly, have you thought in terms of the trade-offs of we can get there more broadly everywhere with a system such as that than we can going forward with VTS at a much larger cost which is going to delay, given funding shortfalls, the kind of upgrades that will impact in the real world on safety?

Admiral ECKER. Let me restate, Tampa has a positioning system. It is not a vessel-traffic system for a number of principles.

Mr. BATEMAN. It is not important to me what you call it. It is important as to whether or not it is functioning and giving you a result that translates into greater safety.

Admiral ECKER. It is important, because by definition, they do different things. There are other ports in the United States that may, because of the amount of hazardous materials and configuration of the port, benefit from technology that is less costly than that which we would install in Los Angeles or New Orleans. This technology may provide a good benefit to a port without the dollars associated with a larger system. Once the VTS 2000 system is developed, it is relatively straightforward to distribute the type of technology in other ports because the capital investment is in the development of the system.

Mr. BATEMAN. Thank you, Mr. Chairman.

Mr. TAUZIN. Mrs. Lambert.

Ms. LAMBERT. Thank you, Mr. Chairman, for first of all holding the hearing and I don't know if I can get it right. It is quite enjoyable to listen to Captain Delesdernier, as I spent many an afternoon growing up sitting on the sand bar in Helena watching the barges navigate and negotiate the crooks and turns in the river. So I have a tremendous amount of respect for the navigation and for the reverence of the river which I was taught at an early age.

Mr. TAUZIN. You shouldn't talk about the crooks in the river with gambling coming.

Ms. LAMBERT. I just have a few questions and I think basically you have answered one of them as a panel. Under the budget restraints that we are seeing, I have gotten the impression that you all feel under the budget restraints that perhaps there is a greater necessity to upgrade perhaps the existing, as opposed—the existing VTS systems and maybe see of the current ports that we have as opposed to developing and making the VTS 2000 operational in the new ports.

Have I gotten the correct impression there?

Admiral ECKER. Not necessarily. The funding for the upgrades, San Francisco, New York and Puget Sound has been provided so long as we get what we had asked for in the 1994 budget, and I believe that is looking promising. At New York, the installation is complete. The equipment has been moved in. We are now in the process of finalizing the testing of that new system which has been delivered there. That is an upgrade of the existing technology in New York. The New York VTS will be expanded to additional coverage of the waterway within the next year. Puget Sound will

follow after New York because we will be using the technology and the basic equipment suite that was done in New York to upgrade the Puget Sound facility, so that part of our VTS program is well in hand.

It is the VTS 2000 development for the new ports that we have grave concerns over. We need to continue the budget stream as we have proposed.

Ms. LAMBERT. We all want to see the budget stream continued, but as far as necessity is concerned under restraints you feel the necessity of the operation in the new ports or the new operations in the ports is as big a necessity as the upgrades?

Admiral ECKER. Yes.

Captain ASPLAND. I would like to comment on that issue also. One thing that we need for the new ports, and I totally agree on the existing ports, is that we may be able to from a coalition of industry, State and Federal Government figure out how to fund some of these things.

The issue, though, is what standard and how should we put the basic elements together to be able to transfer that over.

Secondly, from a local level, if we put all the capital investment in, is there a chance somewhere along the road that we can get that capital investment back if the Federal Government were to come in and take it over? So I support VTS 2000 because it will give us a basis on which to begin to put a system together and maybe the Tampa system would work in that type of system.

Ms. LAMBERT. We have seen this time and time again in funding from Congress. Since Congress has not fully funded the VTS 2000 program, how much do you think we can expect the price of this project to grow as we put off funding these projects? Their price tags seem to grow both as far as time and technology as they increase, but also in damages that may have occurred or the lack of having the services in place early on.

Can we expect a real true growth in the cost of the program as we—

Admiral ECKER. I think definitely so. I wouldn't put a dollar figure on it but any time you stretch something out you will have cost growth. More importantly, slippages in the early development, even if we only slip a year now we may be talking about two years in terms of the time we implement in the first few ports. So it is important that we keep the momentum going and keep the system integrators and the system engineers working, so we don't start losing big chunks of time for small delays on this end.

Ms. LAMBERT. How effective is a service like this as you move closer in on the inland waterways and as a timeframe? I see several of my loading docks and what have you on the Mississippi, we are pretty far below St. Louis and some of the areas that are very stricken by the floods and we are seeing some of the results. How close to the inland waterways would you see this system effective and how soon?

Admiral ECKER. The applicability of something like a system 2000 is more for the coastal port areas. We are not looking at something like this in Memphis. In Louisville and also on the Arkansas River we have vessel traffic services established that are initiated when river conditions reach a certain state.

In Louisville, it is when the gauge gets to 13 feet and in Arkansas it is when the flow rate at Pine Bluff exceeds a certain cubic foot per minute. These are lower level vessel traffic services that we can institute to meet demands on local rivers and inland areas where you don't need full blown suite of a VTS 2000 to bring about safety in a local area.

Ms. LAMBERT. Memphis would be a possibility, too?

Admiral ECKER. If Memphis needed it we would look at Memphis, yes.

Ms. LAMBERT. Thank you.

Mr. TAUZIN. Thank you, Ms. Lambert.

Admiral, what are the Coast Guard's thoughts about some of Captain Aspland's recommendations for a trust fund and user fees?

Admiral ECKER. The issue of user fees is not a new subject. It has been debated and discussed for a number of years. We have said on the record that we are not in favor of a user fee. It basically puts the government or the Coast Guard into competitiveness between ports. It could have a down side when one port loses out to another port because of higher charges, so the vessels will be going elsewhere and not come under the VTS umbrella. Competitiveness and rechanneling of traffic are some of the down sides that we see.

Captain ASPLAND. I understand where the Admiral is coming from. I don't believe it is much of an argument. If we want to get into port to port, one thing we have not done in this country is to go to foreign ports and see what they charge us for user fees. For me to send a 120,000-tonner into the Port of Rotterdam costs \$100,000. To come into Los Angeles it is basically \$40,000 and I pay for nothing. So I think there are things here that need to be looked at, and I have a hard time believing that \$250 is going to change where a ship goes from Los Angeles to somewhere else.

Mr. TAUZIN. Mr. Timmel?

Mr. TIMMEL. I agree and disagree with the two statements just made.

Mr. TAUZIN. You could be a Congressman.

Mr. TIMMEL. I agree it should be insignificant. We looked at a port fee scenario for our system as well. Estimates would result in \$150 to \$250 per transit similar to what they are suggesting for Long Beach. When you compare that to the total port costs, or a better example is look at the costs of line handlers, the guys standing on the dock to tie ships up. Line handler fees fall in the neighborhood of \$600.

When you look at \$300 to \$400 to provide this type of protection you would think that would not be arguable. However, we met last week with our three port directors and it is very arguable. They are concerned that any increase in port tariffs will make them non-competitive with other ports. So there is concern on the part of people within the port community that any increase in this extremely competitive climate could have a negative impact.

Captain DELESDERNIER. I work closely with the New Orleans Steamship Association and any time you talk about one penny of increased costs you have a fight on your hands. That is a large body and a lot of people.

Mr. TAUZIN. Finally, the flooding in the Upper Mississippi River. Obviously, it is not predicted to be a problem in the Lower Missis-

sippi because two-thirds of the water comes out of the Ohio River Valley System, but nevertheless it will create some new navigational problems not only for the Coast Guard and for pilots, but for the Corps of Engineers.

Do you have any insight of that as it affects navigation and the needs of VTS and other systems?

Admiral ECKER. I have visited the St. Louis area three times in the last four weeks in connection with the flooding activities. It is a tragedy of a magnitude that I can't comprehend being on the water. Having said that, we are already seeing some silting problems on the Lower Mississippi River in the area of New Madrid from what is coming out of the Upper Mississippi. In meetings with the Corps of Engineers and the industry, we have discussed the problems of siltation, particularly as the rivers begin to recede and we look to commencing barge navigation on the Upper Mississippi River.

The Corps has brought dredges to position them to get into areas where siltation occurs, but we will, when the problems exist and impede traffic, do on the rivers just as we did 1988 and 1989, when we had the low water. We established vessel controls working with the industry and the Corps. This will come from the Captain of the Port who will introduce whatever restrictive measures are necessary to transit the areas safely.

We have a good information center in place to handle navigational matters in St. Louis, a Coast Guard, Corps and industry coalition that worked in the low water. I have no reason to believe it can't work equally well in high water.

Mr. TAUZIN. Mark, you mentioned an advisory committee, a committee geared up to activate, open and frequent discussions with the Coast Guard and the Corps as down river conditions become dangerous?

Captain DELESDERNIER. We are running out of grain, which is going to cause problems with overcongestion in anchorages because of ships waiting for grain, so we will have to start anchoring ships off the mouth of the river. We will have budget problems with dredgings in that we won't have enough money to get the dirt out.

Another thing is as the water starts to recede, the levees are soft and to the extent that water supports the levee until it falls and when it is not there the levee slides. Hopefully that will not be a big problem. We are having a definite problem with the cargo, the cargo flow, and it is going to start stacking up ships and then there will be a dredging problem.

As the current starts to slack up, more sand starts to settle and the dredging problem becomes more severe.

Mr. TAUZIN. Thank you, gentlemen. We realize much of your testimony has to do with money, how fast we go with systems we employ, how fast the upgrade of new systems and stability of sources, new ideas for funding and starts. It looks like we have perfected an agreement with the Transportation Subcommittee which is bringing their bill forward some time soon for the minimum amount necessary to fund VTS 2000, \$6.6 million. Even with this \$6.6 million VTS 2000 will experience major delays in improving vessel traffic safety in the ports of America.

I want to tell you how unacceptable that is to this committee and how much we regret that we don't have appropriations authority here. Our authority is only to authorize, but I am also asking staff to begin the process of exploring ways to stabilize funding. It is appalling to this committee that we helped put into place a \$1 billion trust fund for oil spill prevention and response and that fund is now filled up and, the collections are going to cease. Yet we can't get money to get the VTS systems installed that everybody agreed was the most important thing to do, to prevent accidents rather than to respond to them.

The increased frustration of this committee and, I hope, for this nation is the notion that we collect a billion dollars of funds in a bill principally designed to prevent spills and we can't even get a few million dollars out of this fund to get the prevention mechanisms in place to do the kind of training, give attention to the kind of personnel problems, Captain Aspland, that you pointed out to us. We are going to see if we can't develop some legislation to stabilize funding and call it to this Nation's and Congress' attention at some future time.

Your ideas have been well received and we will examine them all. We would also like to thank all of you. The innovation of industry, ports, and pilots, across the Nation in cooperation with the Coast Guard in developing VTS 2000 is very encouraging and we would encourage you to continue communicating. If the Coast Guard can learn from new technologies we hope you will take advantage of that and if these can be augmented, we hope system managers will work with the Coast Guard in seeing to it we get the best possible systems.

The money for the upgrades, I understand, is protected in the budget. It is the money for VTS 2000, the work to fund the objective port needs study is what still needs to be done. We will do our best to try to stabilize that funding. We will appreciate your help and your ideas as we go forward. Would any of you care to make a final statement?

Admiral ECKER. I am disappointed, as you would imagine, over the funding levels. That will basically put us into a holding pattern and probably some of the things that I mentioned earlier will come to pass. I would just say that the cost of these kind of casualties, and you don't need an Exxon Valdez with big costs, but the costs of a casualty that is of much less nature easily encompasses the type of funding we are looking for for VTS.

The funding is not that significant when compared to the consequences of only one casualty. If you have a magic kit bag I ask that you reach in and give it your best shot.

Captain ASPLAND. Your observation about where all the money that has been collected and the amount of money that industry has spent, and I estimate it is 6 billion dollars over the last five years, has all gone into oil spill cleanup and the amount of money that went into prevention is in the hundreds of millions of dollars—I think you are on the right track. The million dollars that we are getting in the State comes out of their State oil spill plan and it is a loan.

Captain DELESDERNIER. The Mississippi River is looking for an overlapping radar coverage system and we are not looking for low

light cameras because with the amount of fog and rain we have, that is just a partial system and I think a waste of money.

Mr. TAUZIN. Good point.

Mr. TIMMEL. We began our effort in Tampa in part because a group of us did not care to wait until the date the Coast Guard VTS would be put in. The best information we could get for Tampa, ranking 9th, was 1998. We have been set back. That gives us, speaking for our group, a new determination to make sure that this type of technology goes on and that its budget is in place in Tampa. It also gives me encouragement that maybe we do have an appropriate place in perhaps providing technology for other ports that don't care to wait until this funding problem is sorted out.

Mr. TAUZIN. Thank you gentlemen. We very much appreciate your testimony. We will hear from you and see you again very soon. Thank you very much. This hearing is adjourned.

[Whereupon, at 11:55 a.m., the Subcommittee was adjourned; and the following was submitted for the record:]

U.S. Department
of Transportation

United States
Coast Guard



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DEPARTMENT OF TRANSPORTATION

U. S. COAST GUARD

STATEMENT OF REAR ADMIRAL W. J. ECKER

ON VESSEL TRAFFIC SERVICES 2000

BEFORE THE

SUBCOMMITTEE ON COAST GUARD AND NAVIGATION

COMMITTEE ON MERCHANT MARINE AND FISHERIES

HOUSE OF REPRESENTATIVES

JULY 29, 1993



Rear Admiral William J. Ecker Chief, Office of Navigation Safety and Waterway Services United States Coast Guard

Rear Admiral William J. Ecker assumed duties as Chief, Office of Navigation Safety and Waterway Services, at United States Coast Guard Headquarters, Washington, D.C., in September 1991. He is director of programs for: search and rescue; recreational boating safety; aids to navigation; radio navigation; rules of the road and navigation regulations; vessel traffic services; bridge administration; domestic and polar ice operations; consumer affairs; and the Coast Guard Auxiliary, a civilian volunteer force of about 40,000.

Prior to this assignment, Rear Admiral Ecker served for two and one-half years as Commander, Second Coast Guard District in St. Louis, where he directed Coast Guard operations on more than 6,500 miles of navigable waterways in all or parts of 22 states.

Rear Admiral Ecker graduated from the Coast Guard Academy in 1960 and served in a variety of seagoing and shore assignments during his career. He served on Coast Guard cutters WESTWIND, WINNEBAGO, RESOLUTE, and MELLON. The tour on CGC MELLON included deployment to Vietnam.

Shore assignments included duty as assistant professor in the engineering department at the U.S. Merchant Marine Academy; Chief, Information and Analysis Staff in the Office of Merchant Marine Safety, Washington, D.C.; Commanding Officer of the Marine Inspection Office, New Orleans, LA; Commanding Officer of the Marine Safety Office in Mobile, Ala.; Chief of Operations at the Ninth District in Cleveland, Ohio; Deputy Chief in the Office of Marine Safety, Security and Environmental Protection, Washington, D.C.; and Chief of Staff of the Fifth Coast Guard District, in Portsmouth, Virginia.

Rear Admiral Ecker's decorations include the Legion of Merit, the Meritorious Service Medal (3), the Coast Guard Commendation Medal (4), the Navy Commendation Medal, the Commandant's Letter of Commendation Ribbon (2), the Coast Guard Unit Commendation with "O" Device, the Coast Guard "E" Ribbon (2), the Coast Guard Bicentennial Unit Commendation Ribbon, the Navy Meritorious Unit Commendation, the National Defense Service Medal (2), the U. S. Coast Guard Arctic Service Medal, the Vietnam Service Medal, the Humanitarian Service Medal, the U. S. Coast Guard Special Operations Service Ribbon, the U. S. Coast Guard Sea Service Deployment Ribbon (3), the RVN Gallantry Cross Unit Citation, the RVN Civil Action Citation, the RVN Campaign Medal, the Coast Guard Rifleman Marksman Ribbon and the Coast Guard Pistol Sharpshooter Ribbon.

A native of Brooklyn, N.Y. Rear Admiral Ecker is married and has three children.



DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
STATEMENT OF
REAR ADMIRAL W. J. ECKER
VESSEL TRAFFIC SERVICES 2000
BEFORE THE
SUBCOMMITTEE ON COAST GUARD AND NAVIGATION
COMMITTEE ON MERCHANT MARINE AND FISHERIES
HOUSE OF REPRESENTATIVES
JULY 29, 1993

Good morning, Mr. Chairman. It is my pleasure to appear before this distinguished Subcommittee today to discuss the Coast Guard's Vessel Traffic Service 2000, or VTS 2000, project. The Coast Guard is committed to a national system for enhancing the safety and economic viability of our ports and waterways by employing preventive and protective measures that will contribute to a vital, efficient, safe, and secure transportation infrastructure. VTS 2000 is a manifestation of that commitment. The Oil Pollution Act of 1990 (OPA 90) recognizes the need for enhancing the maritime transportation infrastructure and identifies improved Vessel Traffic Services (VTS) as one means of doing so. In this testimony today, I will provide an overview of the Coast Guard's detailed plan for VTS enhancements.

The Coast Guard's plan for growth and improvement in VTS is called VTS 2000. In essence, VTS 2000 is the major acquisition project that will implement the results of our 1991 Port Needs Study by establishing a national vessel traffic service system.

The Port Needs Study, required by OPA 90 and prepared by the Volpe National Transportation Systems Center, objectively evaluated the safety enhancements and economic benefits that could be gained by having a VTS in 23 major ports and waterways. The study's findings grouped these 23 areas into three categories, according to whether the cost benefit analysis of the study resulted in a positive, sensitive, or negative net benefit. A net benefit is sensitive when its relative value is small, and may be positive or negative over the range of uncertainty tested. The VTS 2000 project focuses on the 15 ports that fall into the positive and sensitive net benefit categories, and two additional ports where there is an existing Coast Guard VTS that will eventually require retrofit with the VTS 2000 system.

The VTS 2000 system will use state-of-the-market components and employ an open architecture/open system design. This approach readily permits the insertion of new technology and accommodates planned future improvements as requirements mature and technology evolves. Our intention is to design a "living system" which will permit planned upgrades over the life of the system.

The Coast Guard is strongly committed to installing VTS 2000 systems at the earliest possible time. We are doing everything we can to expedite the major acquisition process. However, it is much more important that we do it right the first time, and in the most cost effective manner. In other words, the

port requirements should drive equipment procurement rather than hardware forcing the system design.

The Coast Guard is employing an evolutionary acquisition strategy to develop VTS 2000. This strategy is particularly well suited to the VTS project with its open architecture and modular design techniques because, although the general scope of the project is known and the basic requirements can be defined, detailed system requirements are difficult to articulate or quantify. At a minimum, the initial system procured through an evolutionary acquisition strategy will have essential capabilities necessary to meet traffic management responsibilities, enhance navigation and vessel safety, and protect the environment. As requirements evolve during the use of fielded systems, this procurement strategy allows the Coast Guard to incorporate these new requirements as incremental improvements to existing systems and in planned installations at new ports. This evolutionary process will only be possible within an open systems architecture framework that uses standard interfaces, state-of-the-market components, and a shared design philosophy with other Coast Guard systems.

The VTS 2000 project will be supported in five functional areas as follows:

(1) SYSTEM ENGINEER - A system engineering (SE) contractor will support the Coast Guard in evolutionary acquisition by assisting in establishing the common VTS 2000 baseline

requirements and the changes caused by both the unique needs at each port and the opportunities presented by new technologies. The SE contractor will do this by providing acquisition planning, rapid prototyping capability, and engineering and acquisition support for the duration of the evolutionary system development.

(2) SYSTEM INTEGRATOR - A System Integration Contractor (SIC) will perform those tasks needed to provide and integrate VTS modules into a national VTS system and to install, test, and maintain them in selected VTS 2000 ports.

(3) SITE ACQUISITION - Sites for installation of the VTS 2000 sensors and the vessel traffic center (VTC) must be acquired and improved at each port. The effort will include engineering support for site development, environmental documentation, design, and construction management.

(4) INDEPENDENT VERIFICATION AND VALIDATION - An Independent Verification and Validation (IV&V) contractor will be selected to perform software audits and reviews. The IV&V contractor will assist the Coast Guard in determining whether system integration tasks have been completed correctly (verification) and whether the VTS 2000 system as a whole satisfies its requirements (validation).

(5) INDEPENDENT OPERATIONAL TEST AND EVALUATION - An Independent Operational Test and Evaluation (IOT&E) source has been selected to assess whether an operationally effective and operationally suitable system is being developed. The IOT&E will be accomplished by a government agency familiar with IOT&E of command and control systems.

The system engineer, MITRE Corporation, is under contract and is assisting with the acquisition documentation and requirements analysis. Site acquisition for the initial ports is being done by Coast Guard personnel. The acquisition for the System Integration and the Independent Validation & Verification contractors will be full and open competition.

To assist in VTS 2000 requirements analysis and development of an initial VTS operational concept, the Coast Guard formed a Concept and Requirements Team (CART) in February 1993. The CART consists of 18 representatives from the maritime industry, the Coast Guard, and other government agencies with a vested interest in the success of VTS 2000. The operational concept developed by CART provides a VTS 2000 vision as it will exist when fully implemented. It recognizes that the most effective way to reduce the risk of vessel accidents is to provide vessel masters with relevant, accurate, and timely information to help them make correct navigational decisions. This operational concept is the cornerstone upon which the Coast Guard will develop the operational requirements that are needed to progress successfully through the acquisition phase of the VTS 2000 project.

Since the release of the Port Needs Study, the marine electronics industry has expressed significant interest in the VTS 2000 project. We appreciate industry's enthusiasm. However, we intend to continue in a deliberate, systematic process consistent with the Major Acquisition Process.

The major acquisition structured process, governed by the Office of Management and Budget (OMB) Circular A-109, provides the framework for a uniform approach to acquisition planning from initial design through deployment, resource management, acquisition execution and contracting, and meeting the oversight requirements of the Department of Transportation and Congress. The VTS 2000 project is currently in the Concept Development Phase and the Coast Guard is producing the planning documents necessary before a contract solicitation can be issued. I must emphasize that up-front planning is one of the most critical factors in ensuring success of the VTS 2000 project. Rushing into a hardware procurement, then attempting to retroactively adapt that hardware to meet the needs of waterways as different as the Mississippi River and the open ocean approaches to Los Angeles and Long Beach, would result in waste, inefficiency, and project failure.

The VTS 2000 project has five acquisition strategy objectives. First, to establish new VTS systems using the Port Needs Study as the basis for investment decisions. Second, to ensure cross-functionality with other information systems to enable VTS 2000 to exchange data with Coast Guard systems such as AMVER and the Marine Safety Network (MSN) as well as other government and commercial information systems that could offer synergy to the VTS mission. Third, to develop a non-proprietary,

open architecture system using defined interface standards that will provide flexibility for future changes. Fourth, to retrofit existing Vessel Traffic Systems, thus creating a national VTS system with all ports having the same technical capability. And, fifth, to enhance logistics support through commonality of software, hardware, and equipment.

The planned capability includes decision support systems that far exceed the capability of our existing VTSs and match the capability of any in the world. All functions will be integrated to allow for as much automation as possible. Our intent is to reduce the watchstander workload and allow the system to perform as much as possible automatically. This will free the watchstanders from many manual tasks, allowing them to focus more on monitoring traffic and managing the waterway.

VTS 2000 will be a national VTS system, thereby allowing for standardization and a reduction in life-cycle costs. The system will have the same look and feel whether you are sitting at a console in New Orleans or Los Angeles/Long Beach. We recognize that different ports have local requirements that will not be completely met by a "national" system. Therefore, the system will have the flexibility to accommodate unique port requirements. To accomplish this, we are developing a set of "core" requirements that will be applicable to all ports, plus specific requirements applicable only to specific ports.

The VTS 2000 plan is proceeding well. The system engineer, MITRE, is working with the CART to describe our requirements in sufficient detail so that we obtain the VTS system that best serves the customers' needs. Site identification is underway in New Orleans and Los Angeles/Long Beach. Detailed geographic assessments have been completed in Mobile, Alabama, and Corpus Christi, Texas. Similar assessments are commencing in Boston, Massachusetts, and Tampa, Florida.

We are planning to hold a pre-solicitation conference for potential SICs in August. In selecting a SIC, we will award a six-month design effort contract to as many as three different contractors based on their capability, methodology, and past performance. From these, we will select a single System Integration Contractor. The IV&V contract will be competed after the release of the solicitation for the System Integration Contractor. We've already identified the Naval Surface Warfare Center as the Independent Operational Test & Evaluator.

VTS 2000 is well underway. We ask for the Committee's continued support so that we do not lose the considerable momentum we now have. People are in place; preliminary studies and evaluations are showing results; contracts are awarded or nearly complete, and real property is being sought. Financial stability is all that the project lacks.

The President's Fiscal Year 1994 budget request for VTS 2000 is \$27.6 million. We've completed a sensitivity analysis to determine the impact various levels of funding reductions would have on the project. The published VTS 2000 schedule is adversely impacted if project funding is reduced.

The \$27.6 million requested fully funds the systems engineering contract; project administrative support; survey and design for Port Arthur, Mobile, and Corpus Christi; the System Integration Contractor (SIC) competition; the initial software development; and site acquisition and construction for Los Angeles/Long Beach and New Orleans. The current budget request provides the funds needed for the System Integrator to begin software development and testing for a national system and to maintain the desired schedule. Although the entire budget amount is unlikely to be obligated in FY 1994, deferred funding puts additional pressure on the Fiscal Year 1995 budget to increase the level above what is currently projected. The budget strategy for the project was to create a balance or near level funding stream and fit the project into it.

Funding at the \$12.6 million level would allow release of the Request for Proposals (RFP) and award of the six-month design effort for the System Integrator contract. At this level of funding, several vendors could competitively design a working system, but there would be insufficient funds to begin the first phase of software development and testing. If a \$15 million

reduction in Fiscal Year 1994 is not restored in Fiscal Year 1995, then initial operating capability may be delayed for the first port to 1997, at the earliest.

Funding at \$6.6 million is the bare minimum requirement to sustain the project. However, this 76% reduction will have severe impacts on the progress of this project. This level would allow for the continuing development of the VTS 2000 national design, including the full life cycle system engineering and development of the system requirements; analysis of alternatives, specifications, and operational measurements; and acquisition of remote sites through leasing, purchase, or permits in Los Angeles/Long Beach and New Orleans.

However, the release of the RFP and award of the System Integrator contract for system design could be delayed as much as three to six months. The Initial Operating Capability for any port would be pushed out from Fiscal Year 1996 to Fiscal Year 1997, at the earliest. Modifications to the system engineering contract would have to be made to rearrange the workload to coincide with the revised project strategy.

The acquisition strategy and the budget need to remain synchronous. Reduction of the budget request impacts the Acquisition Plan; which impacts the completion schedule. Funding reductions will result in under-capitalization of the project.

This project is a top Coast Guard priority. It is in line with the requirements and intent of OPA 90. It is also a Coast Guard project that was highlighted in President Clinton's Vision of Change for America. I appreciate the support the Subcommittee has given the Coast Guard in the past on VTS and I ask your continued support for this very worthwhile project.

Thank you very much, Mr. Chairman. I will be happy to answer any questions you may have.

TESTIMONY OF CAPT. MARK DELESDERNIER, JR.
BEFORE THE COAST GUARD AND NAVIGATION SUBCOMMITTEE
ON JULY 29, 1993 REGARDING VESSEL TRAFFIC SYSTEM 2000.

GOOD MORNING CHAIRMAN TAUZIN AND COMMITTEE MEMBERS. THANK YOU FOR THE OPPORTUNITY TO SPEAK WITH YOU REGARDING THE DEVELOPMENT OF THE COAST GUARD'S VTS 2000 PROGRAM.

I AM MARK DELESDERNIER, JR., AND I HAVE BEEN PRESIDENT OF THE CRESCENT RIVER PORT PILOTS ASSOCIATION FOR THE PAST ELEVEN YEARS. THE CRESCENT RIVER PORT PILOTS OPERATE ON THE MISSISSIPPI RIVER BETWEEN THE HEAD OF PASSES AND THE PORT OF NEW ORLEANS. I HAVE SERVED AS REGIONAL VICE-PRESIDENT OF THE AMERICAN PILOTS' ASSOCIATION FOR SIX YEARS AND ADDITIONALLY AS A TECHNICAL ADVISOR TO THE INTERNATIONAL MARITIME PILOTS ASSOCIATION. I HAVE SERVED ON A NUMBER OF NATIONAL AND INTERNATIONAL COMMITTEES REGARDING NAVIGATIONAL SAFETY ISSUES, AND I HAVE SERVED AS A MEMBER OF THE U.S. DELEGATION TO THE MARITIME SAFETY DIVISION OF THE INTERNATIONAL MARITIME ORGANIZATION SUBCOMMITTEES ON LIFE-SAVING APPLIANCES AND ON STANDARDS OF TRAINING AND WATCHKEEPING.

IN ORDER TO ADEQUATELY DISCUSS THE UTILIZATION OF VTS ON A RIVER SYSTEM AND MORE SPECIFICALLY, THE LOWER MISSISSIPPI RIVER, IT IS USEFUL TO DISCUSS THE PAST VTS AND WHY IT FAILED.

PAST VTS SYSTEM

FROM 1977 TO 1988, THE COAST GUARD IMPLEMENTED A VTS ON THE LOWER MISSISSIPPI RIVER. THE VTS WAS A DEAD-RECKONING SYSTEM AND PARTICIPATION WAS VOLUNTARY. THE SYSTEM RELIED ON VERBAL COMMUNICATIONS FROM THE MARINERS TO THE VTS WATCHSTANDERS WHO DETERMINED POSITION AND SPEED OF VESSELS. THE SYSTEM DID NOT UTILIZE ANY SENSORS TO ESTABLISH THE REAL TIME PRESENCE AND PROGRESS OF VESSEL TRAFFIC. VTS NEW ORLEANS WAS TECHNICALLY FLAWED AND FAILED FOR THE FOLLOWING REASONS:

- 1) VTS WAS VOLUNTARY; CONSEQUENTLY ALL USERS DID NOT PARTICIPATE IN THE SYSTEM.
- 2) VTS WAS TECHNICALLY FLAWED BECAUSE IT COULD NOT PROVIDE ACCURATE (REAL TIME) INFORMATION TO THE MARINERS.
- 3) VTS WAS IMPLEMENTED WITHOUT THE COOPERATION OF USER GROUPS AND INDUSTRY REPRESENTATIVES, RESULTING IN POOR USER ACCEPTANCE.
- 4) VTS WAS MANAGED BY INEXPERIENCED COAST GUARD PERSONNEL WHO WERE UNABLE TO ADEQUATELY ADVISE AND INFORM THE USERS.

THE MOST SIGNIFICANT DEFICIENCY OF VTS NEW ORLEANS WAS ITS INABILITY TO PROVIDE REAL TIME INFORMATION TO THE USER. THE SYSTEM DID NOT HAVE RADARS OR OTHER SENSORS TO ACCURATELY REFLECT THE EXISTING TRAFFIC SITUATION. THE INFORMATION PROVIDED TO THE MARINERS WAS INACCURATE AND POTENTIALLY HAZARDOUS. THIS DEFICIENCY WAS FURTHER COMPLICATED BY THE FAILURE OF THE MARINERS TO PARTICIPATE. THE NON-PARTICIPATES WERE NOT INCLUDED IN THE TRAFFIC SCHEMES; THEREFORE THE USER RECEIVED INADEQUATE INFORMATION.

EVEN IF THE SYSTEM HAD NOT BEEN TECHNICALLY FLAWED, IT WOULD HAVE FAILED DUE TO THE INEXPERIENCE OF THE COAST GUARD WATCHSTANDERS/OPERATORS. THE WATCHSTANDERS LACKED THE EXPERIENCE TO ADEQUATELY COMMUNICATE THE INFORMATION TO THE USERS AND TO FORMULATE THE RAW DATA INTO USABLE INFORMATION. ALL OF THESE DEFICIENCIES MUST BE ADDRESSED TO ENSURE THAT A FUTURE VTS IS VIABLE AND FUNCTIONAL.

SINCE THE EXXON VALDEZ CASUALTY, A NEW LIGHT HAS BEEN FOCUSED ON VESSEL TRAFFIC SYSTEMS AND THE VTS' ABILITY TO MITIGATE THESE CATASTROPHIC LOSSES. HOPEFULLY WE CAN LEARN FROM OUR PAST EXPERIENCE AND DEVELOP A VTS WHICH WILL PROTECT OUR CITIZENS AND ENVIRONMENT FROM ANOTHER VALDEZ TYPE INCIDENT.

FUTURE VTS SYSTEM

THE PRINCIPAL BENEFIT OF ANY FUTURE VTS IS TO IMPROVE ORDER AND PREDICTABILITY. A VTS ACCOMPLISHES THIS GOAL BY OVERLAYING ITS SERVICE AREA WITH AN ORGANIZATIONAL STRUCTURE FOR INDEPENDENT DECISION MAKING.

ANY FUTURE VTS SYSTEM MUST CONTAIN THE FOLLOWING ELEMENTS TO BE SUCCESSFUL:

- 1) THE SYSTEM MUST BE PORT SPECIFIC OR DESIGNATED TO WORK IN A PARTICULAR WATERWAY SYSTEM AND BE FOCUSED ON THE USER.
- 2) THE SYSTEM MUST ENHANCE THE COMMUNICATIONS BETWEEN MARINERS AND THE VESSEL TRAFFIC CENTER WITHOUT BEING OBTRUSIVE.
- 3) THE SYSTEM MUST BE TOTALLY INTEGRATED AND HAVE EQUIPMENT WITH THE TECHNICAL ABILITY TO ENSURE ACCURACY AND RELIABILITY OF THE INFORMATION DISSEMINATED TO THE MARINER.
- 4) THE SYSTEM MUST BE MANAGED BY PROFESSIONAL MARINERS WHO HAVE LOCAL KNOWLEDGE OF THE WATERWAY AND ARE CAPABLE OF COMMUNICATING WITH THE MARINER.
- 5) THE SYSTEMS MUST BE ADVISORY AND ALLOW THE MARINER TO EXERCISE INDEPENDENT DECISION MAKING.

VTS MUST BE SPECIFICALLY DESIGNED FOR THE AREA IN WHICH IT IS IMPLEMENTED. A SYSTEM DESIGNED FOR AN OPEN BAY IS NOT COMPATIBLE WITH A RIVER SYSTEM. IN A RIVER SYSTEM, VESSELS WORK IN CLOSE PROXIMITY TO EACH OTHER AND ARE AFFECTED BY CURRENT, SANDBARS, BANK AFFECT, AND THE TOPOGRAPHY OF THE AREA. A RIVER SYSTEM SHOULD HAVE SENSORS WHICH HAVE A HIGH DEGREE OF ACCURACY AND THE ABILITY TO PREDICT MEETING AND PASSING SITUATIONS.

HEAVILY TRAFFICKED AREAS RESULT IN BRIDGE-TO-BRIDGE COMMUNICATION SYSTEMS THAT ARE OVER BURDENED AND UNRELIABLE. VTS SHOULD ATTEMPT TO RELIEVE THIS PROBLEM RATHER THAN EXASPERATE IT BY PROVIDING TO THE MARINERS A SYSTEM WHICH IS UNCETRUSIVE. VESSEL TRAFFIC CENTERS SHOULD PROVIDE DIGITAL COMMUNICATIONS WHICH WOULD RELIEVE COMMUNICATION PROBLEMS.

AN INTEGRATED SYSTEM ALLOWS THE MARINER TO OBTAIN A COMPOSITE PICTURE OF THE TRAFFIC IN THE VTS AREA. THIS WILL ENHANCE THE MARINERS' ABILITY TO MAKE NAVIGATIONAL DECISIONS AND AVOID POTENTIALLY HAZARDOUS SITUATIONS. THE INFORMATION RECEIVED MUST BE ACCURATE SO THE MARINER CAN MAKE TIMELY DECISIONS. PROPER EQUIPMENT IS ESSENTIAL TO ENSURE THE ACCURACY OF THE INFORMATION. THE EQUIPMENT SHOULD INCLUDE RADAR, DIFFERENTIAL GLOBAL POSITIONING SYSTEMS (DGPS) AND DIGITAL COMMUNICATIONS.

IT IS ESSENTIAL THAT THE WATCHSTANDERS HAVE THE ABILITY AND LOCAL KNOWLEDGE TO EFFECTIVELY COMMUNICATE WITH THE MARINER. THE WATCHSTANDER SHOULD BE SELECTED FROM THE LOCAL MARITIME COMMUNITY WHICH WILL ENHANCE THEIR ABILITY TO COMMUNICATE. THE EMPLOYMENT OF LOCAL LICENSED PERSONNEL AS WATCHSTANDERS WILL REDUCE TURNOVERS AND ENHANCE THEIR EFFICIENCY. THIS CANNOT BE ACCOMPLISHED BY UTILIZING COAST GUARD PERSONNEL AS WATCHSTANDERS.

THIS SYSTEM MUST BE INFORMATIONAL. CARE SHOULD BE TAKEN THAT VTS DOES NOT ENCROACH UPON THE MASTER'S RESPONSIBILITY FOR THE SAFE NAVIGATION OF HIS VESSEL OR DISTURB THE TRADITIONAL RELATIONSHIP BETWEEN MASTER AND PILOT.

CONCLUSION

NO VTS IS BETTER THAN A VTS WHICH IS TECHNICALLY FLAWED AND BURDENSOME TO THE USER. HOPEFULLY WE CAN LEARN FROM OUR PAST AND CREATE A SYSTEM WHICH IS BOTH ECONOMICAL FEASIBLE AND WHICH WILL PROTECT OUR CITIZENS AND ENVIRONMENT FROM CATASTROPHES SUCH AS THE EXXON VALDEZ INCIDENT.

STATEMENT OF CAPTAIN JERRY A. ASPLAND
before the
Subcommittee on the Coast Guard
House Merchant Marine and Fisheries Committee
July 29, 1993

Good morning! I am Captain Jerry A. Aspland, President of ARCO Marine, Inc. located in Long Beach, California. ARCO Marine, Inc. owns ten U.S. flag tankers basically operating on the U.S. West Coast.

It is a pleasure to be invited by the Subcommittee to discuss a most important vessel casualty prevention tool as vessel traffic systems or as I like to call them vessel traffic information and management systems.

I am not a technical expert when it comes to electronic equipment, but I have spent a good part of my career concentrating on prevention of marine casualties and marine personnel behavior to reduce human error. Based on my experiences, I would like to offer some thoughts on VTS:

Vessel traffic systems have the potential to reduce risk of casualty more than any other mechanical technical system. It is my belief that human behavior, decision-making, is the number one issue in casualty prevention. Since we refuse to deal with this subject, I would turn to VTS. Why?

- all vessels participate
- VTS provides information not otherwise available
- It's cost effective

Vessel traffic systems must be mandatory. All vessels must participate and their space management movement governed by the system. This does not mean the system will give engine or rudder orders nor will it take away the responsibility of the master but it does mean the system can order the vessel to stop to go to anchor or other commands will provide a safer vessel space management.

VTS hardware cannot be the priority item in developing the system. The top priority must be the interface of the bridge team and the VTS personnel. Trust between all personnel must be absolute. Without trust, the system will be crippled and ineffective.

VTS is not a proprietary tool of the pilot, Port Authority, Ship Master or the U.S. Coast Guard. It is a tool to be utilized by all stakeholders to provide a vessel traffic information and management system, therefore, making our waterways safer.

VTS funding seems to always be a major roadblock into developing, installing and then operating the system. I personally believe lack of

funding is a poor excuse for not proceeding, and perhaps the time has come to reevaluate the funding mechanism. For example, how about a national VTS trust or federal government capital and user fee operating expenses scheme.

VTS does not have to be a federally controlled activity. VTS can be a private, local government or federal agency; but if the VTS is not a federally controlled activity, three considerations must be given:

1. granting a form of "VTS Immunity".
2. development of VTS standards for installations and operations of VTS systems.
3. ability to develop rules and regulations at the local level to support the locally operated system.

Each VTS system must have a locally constituted user advisory group. This group could play a key role in building trust in the system and people involved. The foregoing completes my general comments about VTS. However, I would be remiss in not bringing the Committee up to date on the VTS activities in my home Port of Long Beach/Los Angeles. We are proceeding ahead with a locally developed, funded, and operated VTS system. The State of California is going to loan the Marine Exchange one

million dollars for development and installation. Committees have been formed to address all aspects of operation and the U.S. Coast Guard has been involved in every step of the way. Funding will be provided as a user fee and will be distributed using a fair method. It should be pointed out that the Marine Exchange and its Board of Directors are taking on some personal risk but all believe our actions are in the best interest of all stakeholders operating in the port complex. Our scheduled target date for operation is January 1, 1994. The Marine Exchange invites the committee to visit the facility. Also, if you require a more detailed presentation on the Long Beach/Los Angeles system, we can arrange it.

This concludes my testimony. Again, thank you and I would be most happy to answer any questions.

TAMPA BAY VIPS
VESSEL INFORMATION AND POSITIONING SYSTEM
STATEMENT OF CAPTAIN JOHN C. TIMMEL
ON A PRIVATIZED VESSEL POSITIONING SYSTEM INITIATIVE IN TAMPA BAY
BEFORE THE SUBCOMMITTEE ON NAVIGATION AND COAST GUARD
HOUSE OF REPRESENTATIVES
JULY 29, 1993

Good morning/afternoon, Mr. Chairman and distinguished members of this subcommittee. My name is Captain John C. Timmel. I am a harbor pilot who shares with others the responsibility of guiding ships safely in and out of Tampa Bay. Pilots are those individuals within a port who through extensive training, study and experience possess expertise in ship handling skills and "local knowledge" of the complexities and intricacies of their particular harbors. It is with this background that I come to you today to tell you about the absence of what is a desperately needed technology in my profession. I also stand before you today as president of Tampa Bay Vessel Information and Positioning System (VIPS), a not-for-profit corporation created to fill this technological void. Navigational tools have now been developed which will assist pilots and other mariners in preventing accidents, and prevention is the key word here.

I am here to share with you today how free enterprise, technology and good old American ingenuity can save our nation billions of dollars and go a long way towards ensuring that the thousands of miles of oil boom, the stockpiles of absorbents and dispersants, and the fleet of skimmers and containment vessels that have been built do what we all hope they will do -- sit idle and never be used!

Our initiative began two and one-half years ago when Mobil Oil Corporation hosted a forum of marine leaders including representatives of Tampa Bay's maritime community and local Coast Guard to discuss the idea of a privatized vessel positioning system for Tampa Bay. When the new technologies (then just evolving) were discussed, the significance of them, in consideration of our specific needs, were immediately apparent. As a result of this forum, the Greater Tampa Bay Marine Advisory Council, which is a group made up of USCG representatives, port directors, pilots, shipping company and other industry representatives, established a task force, which I chaired, to investigate the need for and type of system required for our bay and approaches.

The first finding was that a system is indeed needed. The Tampa Bay estuary is an extremely sensitive and fragile ecosystem and is one of the newest members of the National Estuary Program. Tampa Bay is also a complex port with nearly eighty miles of narrow convoluted channels and strong currents. The need for a system became especially evident when consideration was given to the fact that the positioning information now available with the advent of Differential Global Positioning System (DGPS) will allow mariners transiting Tampa Bay to overcome their single greatest navigational problem -- the loss of visual and radar cues in the intense thunder storms and squall lines that are regular features of the summer weather patterns. This combined with the nonexistence of deep-water anchorages within the Bay creates a potentially hazardous situation. Once a deep-draft vessel commences a transit within our narrow channels, it is committed and has only two options available to it: it may either deliberately ground itself in an area where damage is less likely to occur or it may continue on regardless of the conditions. Let me assure you that when you are navigating a deep-loaded tanker and are caught in one of these storm systems with blinding rain, fifty-plus knot winds setting you towards the shoals and all that is guiding you through it is instinct, seasoned with experience, that the need for a positioning system becomes unquestionable. It was, in fact, this type of scenario that resulted in the tragic Sunshine Skyway Bridge - Summit Venture allision in 1980 which left thirty-five people dead. We must prevent this type of accident from occurring again by providing

mariners with the technology that will serve as seeing-eye dogs in what are otherwise blind navigational situations. Simply mandating that accidents must not occur is not enough. Though no system can guarantee that accidents will not occur, had this system existed in 1980 the Sunshine Skyway Bridge accident may very well have been averted.

We have determined that a hybrid system combining shore based radar with input from the DGPS is the technical solution for protecting Tampa Bay's harbor and its approaches. This blended imagery will provide the all-weather DGPS navigational precision required for the vessels participating in the system and the radar detection and tracking capabilities for those vessels that are not. This combined positioning system precept has been established and verified. In fact, the U.S. Coast Guard is currently implementing this concept in the Prince William Sound.

This brings us to the most unique aspect of the technology that is being pursued by our organization, and the one which is considered to provide the primary advantage over the conventional system: the carry-on pilot unit. This is a self-contained piece of navigational equipment weighing less than fifteen pounds which will be brought aboard each vessel with the pilot. It displays the DGPS position of your own vessel and other participants and the radar position of those not participating. This information will be provided in an Electronic Chart Display and Information System (ECDIS) type format. This approach, which redirects conventional thinking, will allow ports to determine the type of equipment required onboard vessels navigating within their waters and provide the ability for these vessels to become compliant the minute a pilot steps aboard with a carry on unit.

In addition, other pertinent navigational data will be transmitted to the user. This will include: real-time tide and tidal current information; real-time weather information; traffic lists; safety broadcast information; etc. This information, where available in a conventional VTS, is interpreted by an operator and disseminated by way of Very High Frequency (VHF) voice radio. The VIPS design eliminates this middle man and provides voice-less information in a simple visual form directly to the one who needs it -- those actually involved in the navigation of the vessel.

The planned system will have capital and installation costs of \$1.4 million dollars. This is one-fourth of the cost of the federal candidate system modeled for Tampa Bay in the USCG's "Port Needs Study", and includes many capabilities which that system did not offer. As the system is user operated, the need for personnel is minimal. As a result, the operational costs, including all anticipated expenses, are projected at \$448 thousand annually. The "Port Needs Study" candidate model system's operating expenses were projected at \$489 thousand annually for manning costs alone. It is obvious that significant savings can be realized when not operating under the restrictions required by federal procurement protocol. This is an example of private enterprise at its best.

There are two primary strategies for funding the Tampa Bay VIPS initiative. The first of these is to obtain start-up contributions from established governmental trust funds and grants. These include such funds as the Florida Coastal Protection Fund and the Federal Oil Spill Liability Trust Fund which already has \$1 billion of accumulated monies.

The second funding approach is through user fees. While this may sound as if it makes sense, in reality it is not the best choice. There is a pervasive concern by some in the port community that even though the cost-benefit ratio is positive and the enhanced safety margins provided by the system are desirable, even a nominal increase in port tariffs could have a negative impact on port's commerce as a result of the competitive climate that exists

today. Further, many of those who would be paying these fees have already paid for this type of protection many times over through their required contributions into existing funds.

Our initiative has gone as far as it has as a result of the energies of a few leaders with vision refusing to allow it to die. Costs thus far have been borne by individuals with no hope of profit and by forward thinking corporations like Mobil who see the value of prevention over that of response. In the next ten years, the marine industry worldwide will spend \$20-30 billion on vessel safety measures, including double hulls, and response preparedness. Though as a staunch environmentalist I believe in being prepared to respond, I nevertheless feel that the focus on response preparedness has been excessive and has already absorbed too much of the limited financial resources which could have been applied more effectively on prevention. We need to shift our focus from reacting to accidents to preventing accidents. Our proposed VIPS will do exactly that.

The citizens of the nation deserve the increased protection this technology will provide. It makes more sense to spend a million dollars on prevention than several hundred million dollars on response later. Even double hulls will not necessarily prevent pollution and they certainly do nothing to prevent accidents. We need to make use of 20th century navigation technology. In many cases, vessels are still navigated much the same way that they were one hundred years ago. In the nearly six years that I've been piloting on Tampa Bay, not one technological advancement has been implemented to help me prevent an accident. No matter how good a pilot I am, I still have to make numerous subjective judgements. We now have an opportunity to provide a tool that will help me make those judgements. We need to prevent maritime disasters, not just respond to them. The Tampa VIPS project seeks to do exactly that for a fraction of what already has been spent on response preparedness. Mr. Chairman, we need your support to enable us to access this ready and proven technology without further delay and continued risk to the environment. May I suggest to you that there is a place for this type of user-driven system in many ports throughout the nation. The Tampa Bay VIPS could serve as a model demonstrating the value and cost effectiveness of this privatized approach. I ask you to consider allocating a portion of the VTS 2000 funds being discussed here today to implement this project.

Thank you very much Mr. Chairman and members of this subcommittee. I will now be happy to answer any questions you may have.

WRITTEN TESTIMONY OF THE
NATURAL RESOURCES DEFENSE COUNCIL
ON
VESSEL TRAFFIC SERVICES IN THE UNITED STATES

BEFORE THE
HOUSE SUBCOMMITTEE ON COAST GUARD AND NAVIGATION

July 29, 1993

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The Natural Resources Defense Council submits this written testimony on the issue of Vessel Traffic Services in United States ports and waterways. NRDC has worked on the issue of oil pollution for two decades and has released two reports, **No Safe Harbor** in 1990 and **Safety at Bay** in 1992, on oil spill prevention and response in the United States. NRDC has long supported Vessel Traffic Services ("VTS") as a key measure for preventing oil spills in harbors with heavy traffic, navigational hazards, and environmentally sensitive areas.

In our testimony, NRDC will discuss the current status of Vessel Traffic Services in the United States, focussing on the harbors of New York, San Francisco, and L.A./Long Beach. We will then discuss VTS in the context of the Oil Pollution Act of 1990. Finally, we will discuss the advanced technologies now available that can make VTS systems even more effective in preventing oil spills.

Vessel Traffic Services in the United States

A Vessel Traffic Service (VTS) is a surveillance and communications network designed to facilitate safe harbor navigation. Through the use of VTS, incoming and outgoing vessel traffic can be tracked and vessel navigators advised of hazards such as natural obstacles and other vessels. In addition, the VTS can enable the Coast Guard to direct vessel traffic during adverse weather conditions or in emergency situations. By

providing these services, VTS systems can significantly reduce the risk of vessel collisions and groundings. Thus, effective VTS systems are an important tool in preventing oil spills.

VTS systems, however, have been vastly underutilized in the United States. The Coast Guard currently operates VTS systems in only eight areas nationwide: Louisville, Kentucky; St. Mary's River, Michigan; San Francisco; Prince William Sound; Houston/Galveston; Puget Sound; New York Harbor; and Berwick Bay, Louisiana.

Even where VTS systems are in place in the United States, there have been significant flaws in their mode of operation. For example, the geographic coverage of VTS radar surveillance may be inadequate. In San Francisco Harbor, the radar coverage does not include areas with heavy currents nor areas near refineries which have heavy tanker traffic. In New York Harbor, environmentally-sensitive and difficult to navigate areas on the Hudson River will not be covered when the VTS system there becomes fully implemented.

Case Studies of Vessel Traffic Service Systems

In No Safe Harbor, NRDC evaluated the VTS systems in three major harbors in 1989: New York, L.A./Long Beach, and San Francisco. At that time, despite the fact that these three harbors are among the nation's busiest, the Coast Guard was operating a VTS in only

one: San Francisco. Since that time, the Coast Guard has revived a dormant VTS in New York, but still has not implemented a VTS in Los Angeles. Revisiting these harbors now, three years later, we find VTS systems remain inadequate in these three ports (although expansion is slowly being implemented in New York and San Francisco).

New York Harbor

The Coast Guard first established a VTS in New York Harbor in January of 1985. This VTS was shut down in July of 1988 due to budget cuts. In the aftermath of the Exxon Valdez spill, and acting with renewed support from Congress and the National Transportation Safety Board, the Coast Guard resumed partial operation of the New York VTS in August of 1990. At that time, the Coast Guard announced a three stage plan to implement full VTS coverage in New York Harbor by August of 1992. The first stage of the plan called for installing radar and closed circuit television surveillance for the Upper Bay, Kill van Kull, and Newark Bay. That stage has been completed.

The Coast Guard recently proposed a new schedule for the two final stages of implementation (the third such schedule for VTS in New York Harbor since it was reactivated) and has proposed extending coverage throughout the East River. Under the new schedule, lower New York Bay and Raritan Bay will be fully covered by Summer 1994; the Arthur Kill will be covered by Spring

1994; and the East River will be covered by Fall 1994. Although NRDC commends the Coast Guard for extending coverage to the East River, we are disappointed that the Hudson River within the Port of New York and New Jersey will not be covered by the expanded VTS, despite the presence of navigational hazards and environmentally sensitive areas throughout the waterway.

Los Angeles/Long Beach Harbor

The Coast Guard does not operate a VTS in Los Angeles Harbor. Private organizations do provide some navigational assistance to incoming vessels. Outside of the headwaters areas, the Marine Exchange, a private non-profit organization, tracks incoming and outgoing vessels by radar and supplies vessels with navigational data. Inside the headwaters, the Jacobsen Pilot Service and the Los Angeles pilot service provide similar radar-based informational assistance for Long Beach and Los Angeles Harbors, respectively.

However, because these private systems cannot require reporting and participation by all vessels, many vessels may not participate and lack of full participation reduces the effectiveness of the entire system. In addition, the vessel tracking system operators do not have any power to control the movements of the vessels; the system is purely informational, rather than advisory or mandatory.

Under VTS 2000, the Coast Guard's blueprint for a uniform and extensive VTS program throughout the United States, the Coast Guard has made installation of VTS in L.A./Long Beach a priority. Unfortunately, cuts in the Coast Guard's budget during the House Appropriations process have jeopardized the installation.

San Francisco Harbor

The San Francisco VTS has radar installations at Point Bonita and Yerba Buena Island, which provide radar coverage of the central bay and the offshore approaches to the harbor. Inside the bay, radar coverage extends north to Point San Pablo and south to the San Mateo Bridge. Closed circuit television also provides visual surveillance of the central bay area. Outside the bay, radar covers the seaside approaches up to 35 miles from the Golden Gate Bridge.

However, the part of the bay north of the San Rafael Bridge, which is home to five oil refineries, is not presently covered by radar or closed circuit television. The Coast Guard is planning to extend radar and television coverage to encompass this area, which includes San Pablo Bay, Suisun Bay, and the Carquinez Strait. The Carquinez Strait is particularly dangerous because of fast currents and heavy tanker traffic. We urge the Coast Guard to extend coverage to this area as quickly as possible, and Congress to extend the necessary funding.

Vessel Traffic Services Under the Oil Pollution Act of 1990

The Oil Pollution Act has been only partially successful in addressing inadequacies in the national VTS system. OPA does increase the Coast Guard's authority to control vessels in harbors, and requires mandatory participation by appropriate vessels in harbors where VTS systems exist. The Act also gives the Coast Guard the authority to control vessel movements under certain conditions which indicate a high risk for accidents, such as bad weather or congested traffic conditions. However, the regulations implementing these important measures have yet to be released in final form by the Coast Guard.

Proposed regulations were issued by the Coast Guard in August 1991. In addition to requiring that certain vessels (manned vessels of 300 gross tons or more, unmanned towing vessels of 26 feet or more, commercial passenger vessels of 100 gross tons or more, and dredges and floating plants) participate in the VTS system, the proposed national rules also require that participating vessels must comply with the orders of the Vessel Traffic Center during conditions of vessel congestion, reduced visibility, and adverse weather. This provision empowers the Coast Guard to control the waterways, setting speed limits, limits on vessels allowed to enter, and traffic schemes, in order to avoid dangerous navigation conditions. This is currently the rule in New York Harbor, where the Coast Guard has exercised its authority to control traffic during adverse weather and harbor

dredge operations. NRDC supported the regulations as proposed and urges the Coast Guard to issue final regulations as soon as possible.

The Oil Pollution Act also required the Coast Guard to conduct a study to identify and prioritize those U.S. ports that have the greatest need for new or improved VTS. To satisfy this requirement, the Coast Guard prepared the Port Needs Study, an economic study of the costs and benefits of increasing VTS coverage in the U.S.

The Coast Guard first selected 23 port areas for review, and assessed the amount of traffic in the area, the volume of oil and other hazardous materials carried through the area, and location of environmentally sensitive areas. The Coast Guard then developed predictions for collisions that could be avoided by VTS and estimated the costs that would result from allowing the collisions to occur, and the costs of implementing a VTS system.

The Port Needs Study is seriously flawed. For example:

- * OPA did not ask that a cost/benefit analysis be carried out in prioritizing VTS implementation in U.S. ports. The statute directs the Coast Guard to review, for ports throughout the United States, vessel traffic conditions (including types and volumes of cargo carried) and risks of collisions and spills, and to

evaluate the impact of new or expanded VTS systems within the ports. Costs and other relevant data are to be considered but the predominant goal is identification of ports with high risks of spills and evaluating the impact a VTS system could have in reducing the risks.

- * Prediction of future collisions and groundings does not take into account the lack of certainty regarding key spill prevention measures contained in OPA, and whether the risks of spills will accordingly decrease or increase.
- * The economic benefits of avoiding oil spills are virtually impossible to fully define, given the uncertainties of oil spill impacts on a particular environment and of how damages are assessed.
- * The cost-benefit analysis failed to consider all costs associated with oil spills, specifically, the failure to consider non-user values which may be impacted following a spill and the economic costs associated with the impacts. User values, which were included in the analysis, include commercial fishing, recreation, and the value of shoreline property. Non-user values include existence value (the satisfaction gained from

knowing the resource exists untainted) and option value (the value to non-users of the option to use the resource later). OPA explicitly requires that impacts to non-user values be considered when assessing oil pollution damages.

- * Not only did the Coast Guard fail to consider impacts to non-use values, the Port Needs Study also did not consider other indirect VTS benefits such as increased traffic safety for non-participating vessels, the economic value to the port of having a better reputation for safety, and the fact that the Coast Guard can utilize VTSSs to assist in carrying out other duties which require navigational surveillance.

NRDC questions the validity of the study, especially in light of the study's conclusions on which ports would benefit from a new or expanded VTS system. For example, San Francisco Bay is low on the list of ports meriting new or expanded VTS coverage. However, expansion of VTS coverage in San Francisco Bay has been in fact supported by the Coast Guard and is underway. For another example, the ports on the environmentally-sensitive and heavily trafficked Chesapeake Bay are also in the lower half of the list.

Improvements in VTS Technology

Navigational safety is improved when the position of a vessel can be verified accurately in relation to other vessels and navigational hazards. For example, advanced radar systems have proved effective in improving harbor traffic control. In the Port of Rotterdam a network of 26 radars, each with its own tracking system, follows all vessel movements in the harbor, displaying them on one overall chart of the harbor and pinpointing potential problems.

Currently, most VTSs in the United States utilize radar, closed circuit television, and verbal radio reports to determine the position of traveling vessels. Radar or closed circuit television track the vessel's progress. At designated check points, the vessel crew verbally notifies the Coast Guard monitoring station of its size, speed, destination, and any other relevant information. The Coast Guard radios back navigational advice and warns the vessel of any potential hazards. This traditional type of VTS system is estimated to cost approximately \$15 million to set up, and \$3-4 million per year to operate.

Recent advances in technology offer even more accurate and more far-reaching tracking systems than the traditional tracking by radar or by radio contact. These vessel positioning systems allow for a vessel's position to be tracked electronically or by satellite, and to be displayed on a real time basis on a

harborwide chart onboard the vessel and at the Vessel Traffic Center. These systems can be used to display the position of other vessels within an area and the location of rocks, shoals, and other shipping hazards. In addition, these systems can be supplemented with automatic alarms that warn the vessel or the VTC of approaches to navigational hazards and movements outside of the traffic schemes. Examples of these advanced navigation aids include:

1. Automated Dependent Surveillance System

ADSS utilizes a navigation sensor on board a vessel to pass information about that vessel's position to a vessel traffic center. The VTC demands information electronically over a data communications channel, asking the vessel for its position. The vessel responds with its identification code, latitude, longitude, time, course, and speed. Communication is via a radio link, such as VHF. "Digital selective calling," a technology which allows communication to be established on a vacant VHF channel, allows vessels to communicate without using the overburdened distress and safety channel usually used for vessel to center, or vessel to vessel communication.

2. Electronic Chart Display Information System

ECDIS can provide a visual display on a relevant chart, both at the Vessel Traffic Center and on board the vessel, of a vessel's position in relation to the shipping channel, hazards in the

area, and other features presented on the chart. On-board video plotters which show location of the vessel in relation to harbor waterways and hazards cost about \$4,000.

Used in the Vessel Traffic Center, ECDIS allows tracking of vessels by radar and can also include information received electronically by the ADSS. The system can be equipped with alarms signalling passage out of the shipping lane and approaches to hazardous areas.

3. Global Positioning Systems

The GPS satellite navigation system will consist of 24 satellites in orbit above the Earth by the end of 1993. Each satellite occupies a predetermined position in this constellation, and circles the earth every 12 hours, providing measurements which allow GPS receivers aboard vessels anywhere in the world to calculate their location, speed, and time very precisely. On-board satellite receivers cost between \$1,500 and \$2,000. For national security reasons, the highest level of accuracy available under GPS will not be available to non-military users. However, a system called Differential GPS (DGPS) does provide accuracy to within 10 meters.

Thank you for this opportunity to offer written testimony.

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